

EXHIBIT 4

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WISCONSIN

SCOTT WEAVER,
individually and on behalf of all others
similarly situated,

Plaintiff,

v.

CHAMPION PETFOODS USA, INC.
and CHAMPION PETFOODS LP,

Defendants.

Case No. 2:18-cv-01996-JPS

Rebuttal Expert Report of Lorin M. Hitt

September 12, 2019

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I. Qualifications

1. My name is Lorin Moultrie Hitt. I am the Zhang Jindong Professor of Operations, Information and Decisions (OID) at the University of Pennsylvania, Wharton School. As a member of the Information Strategy and Economics Group (ISE), my research and teaching focus on the economics of consumer behavior, firm organization, and market structure, with particular emphasis on the role of information on pricing, performance, and competition.
2. I received my Ph.D. in Management from the Massachusetts Institute of Technology Sloan School of Management in 1996, and my Sc.B. (1988) and Sc.M. (1989) degrees in Electrical Engineering from Brown University. The majority of my Ph.D. coursework was in economics and statistics, and my doctoral dissertation was supervised in part by Zvi Griliches (Harvard), a former Chairman of the American Economic Association (AEA) and a pioneer in methods for understanding the relationship between prices and quality change in complex products. I am a member of the AEA, INFORMS (Operations Research and Management Science Society), Sigma Xi (Scientific Research Society), and Tau Beta Pi (Engineering Honor Society).
3. I have taught undergraduate, masters, doctoral, and executive education level courses at the University of Pennsylvania and the Massachusetts Institute of Technology on competition and customer pricing in a variety of commercial and consumer markets, information systems management, economics of technology, and data analysis. In my Ph.D. seminar, I cover a variety of empirical methods used in economic research, including methods for estimating product demand and supply, pricing products, measuring the effect of external events on market prices, and valuing individual product features in differentiated products using techniques developed by both econometricians and marketing researchers. I am a nine-time winner of the Wharton Undergraduate Teaching Award and have received the Wharton-wide Hauck Award and University-wide Lindback Award for distinguished teaching.
4. My research is characterized by rigorous economic analysis and I am well versed in econometric and statistical methods. A number of my published research papers focus specifically on modeling demand in consumer and commercial markets, assessing these models using market data, and using this information for pricing or product design. My research has been published in top-tier economics and management journals, including the *Quarterly Journal of Economics*, the *Review of Economics and Statistics*, the *Journal of*

Economic Perspectives, Brookings Papers on Economic Activity, Management Science, Information Systems Research, and a number of other top-tier outlets.

5. I formerly served as a Department Editor at *Management Science*, and as a reviewer for a number of management and economics journals including *American Economic Review*, the *Quarterly Journal of Economics*, *Information Economics and Policy*, *Journal of Industrial Economics*, *Journal of Law, Economics, and Organization*, *Managerial and Decision Economics*, *Marketing Science*, *Review of Economics and Statistics*, and *MIT Sloan Management Review*, among others.

6. I have prior experience in litigation matters where I evaluated the value of a product or product features, including products such as automobiles, all-terrain vehicles, trucks, farm implements, furniture, refrigerators, wet dry vacuum cleaners, and flat panel televisions as well as information technology products such as smartphones, tablets, online travel services, and personal computers. My expert opinions in these matters have been accepted in federal, state, and city courts.

7. I have specific experience in consumer class actions including the use of hedonic price analysis, conjoint analysis, contingent valuation and other types of consumer surveys, and the analysis of market price data for the purposes of class certification and measurement of economic injury.

8. My Curriculum Vitae is attached as **Appendix 1** and a list of my testimony in the past four years is attached as **Appendix 2**.

II. Background and Summary of Allegations

9. Plaintiff alleges that Champion Petfoods USA and Champion Petfoods LP (collectively “Champion”) failed to “fully disclose the presence and/or risk of inclusion in their pet food of heavy metals, pentobarbital, toxins, Bisphenol A (‘BPA’), non-regional and non-fresh ingredients, and/or unnatural or other ingredients that do not conform” to Champion’s labeling and advertising.¹ More specifically, Plaintiff claims that Champion advertised some of the company’s products as “biologically appropriate,” made with “fresh regional ingredients” and “fit for human consumption” when in fact the products “contain or have a high risk” of containing mercury, lead, arsenic, cadmium, pentobarbital, toxins, BPA,

¹ Third Amended Class Action Complaint, *Scott Weaver, individually and on behalf of all others similarly situated v. Champion Petfoods USA, Inc. and Champion Petfoods LP*, July 22, 2019 (“Complaint”), ¶ 1.

non-regional and non-fresh, and/or unnatural ingredients, and allegedly pose a risk for pets of developing Dilated Cardiomyopathy.² Plaintiff also alleges that Champion advertised some of its products as “never outsourced” when they “outsource the production of their meals.”³

10. I will refer to the alleged misrepresentations as the “challenged conduct.” Plaintiff alleges that, as a result of the challenged conduct, Champion was able to charge a “premium” and thus “wrongfully capitalized on, and reaped enormous profits from, consumers’ strong preference for natural pet food products.”⁴

11. Plaintiff identifies 22 specific Champion products, including, for example, “Acana Heritage Free-Run Poultry Formula Dry Dog Food,” “Acana Singles Lamb and Apple Formula Dry Dog Food,” and “Orijen Original with Fresh Free-Run Chicken and Turkey, Wild-Caught Fish and Nest-Laid Eggs.”⁵ I will refer to the 22 at-issue products as the “Accused Products.” Plaintiff seeks to certify a class of “[a]ll persons who reside in the State of Wisconsin who, from July 1, 2013, to the present... purchased the [Accused Products] in the State of Wisconsin for household or business use, and not for resale.”⁶

12. Plaintiff has submitted expert reports by Dr. Jon Krosnick⁷ (“Krosnick Report”) and Mr. Colin Weir⁸ (“Weir Report”) in support of their motion for class certification. The Krosnick Report describes the design and results of two consumer surveys. Dr. Krosnick conducted the first survey with the stated purpose of assessing the impact of up to eight “corrective statements” on the “value” of the Accused Products.⁹ Per Dr. Krosnick, these corrective statements “correct alleged misinformation on the [Accused Products’]

² Complaint, ¶¶ 1, 6, 10, 12.

³ Complaint, ¶ 16.

⁴ Complaint, ¶ 112.

⁵ Complaint, ¶ 26.

⁶ Complaint, ¶ 153. Plaintiff’s motion for class certification defines a class period that begins on July 1, 2014. See Memorandum of Points and Authorities in Support of Plaintiff’s Motion for Class Certification dated August 15, 2019, p. 8.

⁷ Expert Report of Dr. Jon A. Krosnick, August 13, 2019. The Krosnick Report is divided into two parts, each describing a different survey. When applicable, I will refer to Part 1 of the Krosnick Report as “Krosnick Report Part 1” and to Part 2 of the Krosnick Report as “Krosnick Report Part 2.” In addition, the Krosnick Report Part 1 has a Technical Report (“Krosnick Technical Report Part 1”) and the Krosnick Report Part 2 has a Technical Report (“Krosnick Technical Report Part 2”).

⁸ Declaration of Colin B. Weir, August 13, 2019.

⁹ See, e.g., Krosnick Report Part 1, ¶ 79; Deposition of Jon A. Krosnick, May 8, 2019 (“Krosnick May 2019 Deposition”), p. 12:9–16 (“My objective in this case was to conduct survey research using best practices in order to measure accurately whether there is any perceived decline in the quality of Champion dog foods examined here as a result of revealing to consumers ... [a]llegations about the dog foods that were explored in the survey.”).

packaging,” and were provided to him by Plaintiff’s counsel.^{10, 11} Dr. Krosnick finds that the inclusion of seven corrective statements on the product packaging would lower the average “value” (which appears to correspond to an average willingness-to-pay measure, as I explain in this report) of the Accused Products by 54.8%, and that including eight corrective statements would lower the average “value” by 59.6%.¹² Dr. Krosnick conducted the second survey purportedly to assess the impact of viewing statements about the alleged possible presence of pentobarbital on perceptions of the dog food’s quality and healthiness. He concludes that “disclosing additional information about the alleged risk of the presence of pentobarbital in an ingredient of the dog foods decreased perceived quality and healthiness by statistically significant amounts.”¹³ I will refer to Dr. Krosnick’s first survey as the “Diminution in Value Survey” and to his second survey as the “Pentobarbital Survey.”

13. The Weir Report attempts to compute “Diminution in Value Damages.” Mr. Weir’s proposed method involves multiplying the “percent loss in value” (again, an estimated reduction in a willingness-to-pay measure by all appearances) associated with including seven or eight corrective statements estimated by Dr. Krosnick’s Diminution in Value Survey, by an estimate of total sales volume of the Accused Products to the proposed class members.¹⁴ Mr. Weir also estimates “Illegal Sales Damages,” which represent his estimate of the total sales to the proposed class members of certain Accused Products that Plaintiff claims had a risk of containing pentobarbital, sold from 2016 to 2018.¹⁵ Mr. Weir estimates total Diminution in Value Damages of \$8.72 million and total Illegal Sales Damages of \$2.23 million.¹⁶ The Weir Report also includes a discussion of Mr. Weir’s claim that these aggregate damages are appropriate to apply to the proposed class and that “individual inquiry is not required.”¹⁷

¹⁰ Krosnick Technical Report Part 1, ¶ 10.

¹¹ An example of one corrective statement (the one that is in reference to the mercury content allegations) is “[l]aboratory testing has shown there is a risk that this food may contain mercury. The World Health Organization has said that in humans, ‘Mercury may have toxic effects on the nervous, digestive and immune systems, and on lungs, kidneys, skin and eyes.’” Krosnick Technical Report Part 1, ¶ 10.

¹² Krosnick Report Part 1, ¶ 79.

¹³ Krosnick Report Part 2, ¶¶ 47, 80.

¹⁴ Weir Report, Section VI.

¹⁵ Weir Report, Section VII.

¹⁶ Weir Report, Tables 3, 4.

¹⁷ Weir Report, Section VIII.

III. Assignment and Materials Relied Upon

14. I was asked by counsel for Champion: (i) to evaluate whether putative class members are similarly situated such that a common method can be used to assess economic injury, and (ii) to review and respond to the Weir and Krosnick Reports on issues relating to the calculation of economic injury to the proposed class. In particular, I was asked to evaluate whether Dr. Krosnick's Diminution in Value Survey results and the use of those results by Mr. Weir together provide a reliable basis for calculating economic injury to the proposed class.

15. In reaching my conclusions, I have reviewed product literature and packaging, academic research, various deposition testimony and legal filings, and various Champion internal and external documents. I have also reviewed the Krosnick Report and the Weir Report and the respective backup to those reports, as well as deposition testimony of Dr. Krosnick and Mr. Weir. In addition, I reviewed the expert report that Professor Dominique M. Hanssens submitted on behalf of Defendants in this matter.¹⁸ **Appendix 3** lists the materials I have relied upon in forming my opinions in this matter.

16. I am being compensated at my usual rate of \$875 per hour. I am being assisted in this matter by staff at Cornerstone Research who are working at my direction. I receive compensation from Cornerstone Research based on its collected staff billings for its support of me in this matter. Neither my compensation in this matter nor my compensation from Cornerstone Research is in any way contingent on the content of my opinion or the outcome of this or any other matter.

17. My work in this matter is ongoing and I reserve the right to update my opinions as additional information becomes available.

IV. Summary of Opinions

18. The methods used by Plaintiff's experts do not and cannot measure economic injury under Plaintiff's theory of harm. Dr. Krosnick's estimated "percent decrease in value" is based on consumers' willingness to pay and not on market price—the correct metric to measure any alleged economic harm under Plaintiff's theory of harm. Willingness to pay is a demand-side factor, and as such it cannot by itself determine the market price in the actual or the "but-for" worlds. Moreover, the use of a willingness-to-pay measure by Dr. Krosnick and

¹⁸ Rebuttal Expert Report of Dominique M. Hanssens, September 12, 2019 ("Hanssens Report").

Mr. Weir likely leads to an overestimate of damages even if willingness to pay were correctly measured—which it is not.

19. Dr. Krosnick’s analysis does not follow an established methodology for estimating the effect of a change in an attribute of a retail consumer product on demand for the product. Not only is there no support in academic literature for the use of Dr. Krosnick’s statistical methods in the context of the Accused Products, but his implementation is unreliable. In fact, the Diminution in Value Survey data do not support Dr. Krosnick’s conclusion that each additional corrective statement causes a “decrease in value” and are also inconsistent with the fundamental economic principle that, all else constant, consumers are less likely to buy a product at a higher price than at a lower price. Furthermore, the decision setting in Dr. Krosnick’s Diminution in Value Survey does not resemble the actual purchasing environment, and his assumption that the same “percent decrease in value” applies to all Accused Products is unsupported.

20. Mr. Weir has failed to propose a reliable method for estimating class-wide damages because he has misunderstood and misapplied the “percent decrease in value” calculated by Dr. Krosnick—a critical input to Mr. Weir’s Diminution in Value Damages method. Mr. Weir incorrectly understood that Dr. Krosnick’s analysis did not rely on willingness to pay, and that it incorporates supply-side factors. In fact, Dr. Krosnick’s analysis *does rely on* willingness to pay and *does not incorporate* supply-side factors.

21. Neither Mr. Weir nor Dr. Krosnick accounts for supply-side factors in their analyses and thus they cannot make inferences about market prices. Contrary to Mr. Weir’s claim, the knowledge about the quantity sold in a specific time period does not eliminate the need to properly model supply and demand for determining “but-for” market prices and estimating economic injury. The quantity sold is not a supply-side factor, but an outcome of the interaction of supply- and demand-side factors—as such, it cannot reflect supply-side factors in the “but-for” world. For the same reason, the use of manufacturer’s suggested retail prices (“MSRPs”) does not account for supply-side factors.

22. There is no basis to assume a common impact of the challenged conduct on the putative class members because the Accused Products are differentiated; therefore, changes in product characteristics will not affect the prices of all products in the same way. Heterogeneity in preferences and information in the market for the Accused Products indicates that the economic factors affecting demand as well as supply differ across products,

consumers, and time, which is inconsistent with a single common market that Mr. Weir assumes.

23. Mr. Weir's claim that "individual inquiry is not required" is inconsistent with the economics of the markets for dog food products. The presence of differentiated products, and variations in prices across vendors even for the same product, suggests that there is not a single common market for the Accused Products, but many different markets that may have different characteristics at potentially different points in time. Similarly, while it is true that consumers do not negotiate individual prices in many retail environments, it is well understood that consumers have a variety of strategies that can affect the prices they pay. For these reasons, there is no theoretical or empirical guarantee that an aggregate damages estimate such as the one proposed by Plaintiff's experts will result in an estimate of damages that is consistent with one based on individual inquiry.

24. Dr. Krosnick's second survey, the Pentobarbital Survey, does not allow any inference regarding diminution in value, therefore it does not provide any support for Mr. Weir's damages calculations, including his Illegal Sales Damages. Mr. Weir does not reference Dr. Krosnick's Pentobarbital Survey at all in his report.

25. Mr. Weir's damages estimation methods overstate dollar sales of the Accused Products. Mr. Weir's computations focus on quantities produced, not quantities sold, and do not account for product spoilage, rejected production lots, and other supply chain factors that can reduce the quantity ultimately sold to retail purchasers. Mr. Weir's use of MSRPs will overstate sales to the extent that retailers are free to discount relative to MSRP or may offer various promotions that lead to either free or reduced price product sales.

26. Finally, there are errors in Mr. Weir's damages calculations that cause him to overstate estimated damages. For example, while the proposed class period begins on July 1, 2014, Mr. Weir incorrectly includes all sales in 2013 and 2014 in his calculation of Diminution in Value Damages. Mr. Weir also incorrectly determines prices for certain products and package sizes. Taken together, the impact of the errors causes Mr. Weir's Diminution in Value Damages to be overestimated by \$842,907 (or 9.7% of Mr. Weir's estimate of \$8.7 million), and Mr. Weir's Illegal Sales Damages to be overestimated by \$376,123 (or 16.9% of Mr. Weir's estimate of \$2.2 million).

V. The Methods Used by Plaintiff's Experts Do Not and Cannot Measure Economic Injury under Plaintiff's Theory of Harm

A. Background on Dr. Krosnick's Diminution in Value Survey and Associated Analysis of Change in "Value"

27. Dr. Krosnick conducted a consumer survey purportedly to determine how various corrective statements “impact the value of the dog foods to consumers.”^{19, 20} To estimate this change in value, Dr. Krosnick presented survey respondents with product package images and text from one product selected randomly from two Champion products chosen by Dr. Krosnick (Orijen Six Fish and Acana Duck and Pear Singles Formula).²¹ He then displayed from zero up to eight “corrective statements” that purport to correct the alleged misrepresentations about product attributes.^{22, 23} Next, he displayed a question of the form “If you were buying dog food today, and the 13 pound bag of dog food you just saw is available at a price of \$47.99, would you buy it, or would you not buy it?” with the two possible responses “Would buy it” or “Would not buy it.”²⁴ The price in this question was randomly selected from \$37.99, \$39.99, \$41.99, \$43.99, and \$45.99 if the consumer was shown Acana Duck and Pear Singles Formula, and from \$47.99, \$50.99, \$53.49, \$55.99, and \$58.99 if the consumer was shown Orijen Six Fish.²⁵ The survey also contained a number of questions about the respondents’ preferences for dog food, their own food purchasing behavior, and characteristics of their dog or dogs (if any) and their relationship with their dogs, which Dr. Krosnick later used to construct control variables for his analysis.²⁶

28. Using the responses to these questions, Dr. Krosnick performed a regression analysis to determine the effect of the *number* of corrective statements on the “value” of the two Accused Products used in his survey. Specifically, he regressed a variable constructed from

¹⁹ Krosnick Report Part 1, ¶ 47. *See also* Krosnick Report Part 1, ¶¶ 2, 12, 78.

²⁰ Dr. Krosnick explained that these statements were provided to him by Plaintiff’s counsel, and that the term “corrective statement” is “... just a label used to refer to those eight statements that were used in the survey.... It’s a term that I made up.” Krosnick May 2019 Deposition, p. 20:18–23.

²¹ Krosnick Technical Report Part 1, ¶¶ 8–9.

²² Respondents were randomly assigned to either see or not see each of the eight “corrective statements.” Krosnick Technical Report Part 1, ¶¶ 8–10; Krosnick Report Part 1, Appendix B, pp. 249–250.

²³ Dr. Krosnick affirmed in deposition that his survey does not “... depend on whether any of the corrective statements is true or not.” Krosnick May 2019 Deposition, p. 22:14–16.

²⁴ Krosnick Technical Report Part 1, ¶ 11. *See also* Krosnick Report Part 1, Appendix B, pp. 199–200.

²⁵ Krosnick Technical Report Part 1, ¶¶ 12–13.

²⁶ Krosnick Technical Report Part 1, ¶¶ 16, 27–32; Krosnick Report Part 1, Appendix B.

the price²⁷ on the *number* of corrective statements viewed by the respondent as well as control variables for gender, age, education, and two scales measuring individual preferences (one aggregating multiple survey responses which he describes as “concern for dog” and the other representing multiple questions related to the “purchase of non-GMO/organic” products).²⁸ Dr. Krosnick claims that his method is motivated by two academic papers that provide an approach for estimating willingness to pay from choice surveys.²⁹

29. The key result of Dr. Krosnick’s analysis for the purpose of damages estimation is summarized in a table on page 52 of the Krosnick Technical Report Part 1 which shows the “Percent Decrease in the Value of the Product With Increasing Numbers of Corrective Statements.” Those results are reproduced below in Table 1.

**Table 1: Dr. Krosnick’s Diminution in Value Survey Results
Estimated Percent Decrease in Value By Number of Corrective Statements**

Number of Corrective Statements	Percent Decrease in Value	Standard Error	z	p-Value
1	-10.7%	6.0%	-1.77	0.08
2	-20.3%	10.8%	-1.88	0.06
3	-28.8%	14.4%	-2.00	0.05
4	-36.4%	17.2%	-2.12	0.03
5	-43.3%	19.2%	-2.25	0.02
6	-49.3%	20.6%	-2.40	0.02
7	-54.8%	21.4%	-2.56	0.01
8	-59.6%	21.9%	-2.73	0.01

Source: Krosnick Technical Report Part 1, p. 52.

Of these results, only the estimates for seven corrective statements (-54.8%) and eight corrective statements (-59.6%) are used by Mr. Weir to calculate his Diminution in Value Damages, by multiplying these “percent decrease in value” figures by estimated sales of each of the Accused Products.³⁰

²⁷ The variable appears to take a value of zero if the consumer “would not buy it” and a value equal to the “price density,” which is computed as the fraction of observations at a price level or price interval, divided by price, if the consumer “would buy it.” Krosnick Report Part 1, Appendix E.

²⁸ Krosnick Technical Report Part 1, ¶¶ 27–32; Krosnick Report Part 1, Appendix E.

²⁹ Those two papers are: Arthur Lewbel, “Semiparametric Qualitative Response Model Estimation with Unknown Heteroscedasticity or Instrumental Variables,” *Journal of Econometrics* 97 (2000): 145–177 (“Lewbel (2000)”), and Masahide Watanabe, “Nonparametric Estimation of Mean Willingness to Pay from Discrete Response Valuation Data,” *American Journal of Agricultural Economics* 92, no. 4 (July 2010): 1114–1135 (“Watanabe (2010)”). See Krosnick Technical Report Part 1, ¶ 34; Krosnick Report Part 1, Appendix E.

³⁰ Weir Report, Table 3.

30. In the remainder of this section, I (1) explain why Dr. Krosnick's willingness-to-pay estimates and their use by Mr. Weir are inappropriate for estimating damages in this matter, (2) detail significant methodological errors that render Dr. Krosnick's estimates unreliable, (3) show that, at a fundamental level, Dr. Krosnick's survey results do not support his conclusions, and (4) explain how Mr. Weir has misunderstood and misapplied the results produced by Dr. Krosnick, and as such has failed to propose a complete method for estimating damages to the proposed class.

B. Dr. Krosnick's Diminution in Value Survey Estimates Cannot Be Used to Reliably Calculate Damages across All Class Members

1. Dr. Krosnick's Estimated Change in "Value" Is an Estimated Change in Willingness to Pay, Which Is Not the Same as a Change in Price

31. Dr. Krosnick characterizes the results of his Diminution in Value Survey as changes in "value" of the Accused Products attributable to the alleged misrepresentations; similar language is used by Mr. Weir in his report ("Krosnick measures the diminution in value associated with the Misrepresentation (measured in percentage terms)...").³¹ This description is ambiguous because "value" can have many different meanings in economics. In his deposition, Dr. Krosnick provided a more specific definition of the term "value," as used in the Krosnick Report:

Q. Okay. And can you tell me what the definition of "value" within your report is?

...

A. In this report, I'm adopting the definition of that term from economics ... abstractly stated; it is the change in the well-being of an individual expressed in dollars that results from a transaction of gaining a good, in this case.

...

So the value is the amount of money that I would have to give up in order to remain at the same level of well-being after receiving the [product].³²

32. Dr. Krosnick's definition is equivalent to the definition of *willingness to pay* generally used in economics and documented in introductory textbooks.

³¹ Weir Report, ¶ 13.

³² Krosnick May 2019 Deposition, pp. 9:11–10:13.

Each buyer's maximum [price that he would pay] is called his willingness to pay, and it measures how much that buyer values the good. Each buyer would be eager to buy the album at a price less than his willingness to pay, and he would refuse to buy the album at a price greater than his willingness to pay. At a price equal to his willingness to pay, the buyer would be indifferent about buying the good: If the price is exactly the same as the value he places on the album, he would be equally happy buying it or keeping his money.³³

33. The literature cited by Dr. Krosnick further confirms that his analysis is intended to measure the *change in average willingness to pay* from consumer choice data.³⁴ In fact, the title of one of the two academic articles Dr. Krosnick cites for his method is “Nonparametric Estimation of *Mean Willingness to Pay* from Discrete Response Valuation Data.”³⁵ Based on my understanding of Dr. Krosnick’s analysis, he has indeed attempted to estimate the reduction in mean willingness to pay associated with various numbers of corrective statements.^{36, 37}

34. However, the change in “value” that should be measured according to Plaintiff’s theory of harm, in the context of a consumer retail product, is the change in the *market price* of the relevant product, that is, the difference between the market price in the actual world and the market price in the “but-for” world in which the challenged conduct is removed.³⁸ This is consistent with language on a proper damages study in the *Reference Guide on Estimation of Economic Damages*, which states:

³³ N. Gregory Mankiw, *Principles of Microeconomics*, 5th ed. (Mason, OH: South-Western Cengage Learning, 2008), p. 138.

³⁴ Watanabe (2010); Lewbel (2000). Watanabe (2010) “develops a nonparametric method to consistently estimate mean willingness to pay (WTP) in various discrete response valuation methods.” Lewbel (2000) offers a general method for estimating certain types of choice models, one application of which is estimating willingness to pay (*see pp. 149–150*). Dr. Krosnick describes his method as the Lewbel-Watanabe approach, citing these two papers. *See Krosnick Technical Report Part 1, ¶ 34*.

³⁵ Watanabe (2010), emphasis added.

³⁶ Dr. Krosnick explained in deposition that his methodology is “derived from a method originally proposed by an economist named Turnbull [and that] the logic of the Turnbull method … is to provide the average willingness to pay or the average value of the good for the sample of respondents…” (Krosnick May 2019 Deposition, pp. 115:21–116:10, 118:21–24).

³⁷ Dr. Krosnick stated in deposition that “[p]rice premium’ is a term used to refer to diminution of value, and so, … you can view [his] survey as a measurement of the decrease in value to consumers as analogous to a price premium.” Krosnick May 2019 Deposition, p. 114:17–20. This alternative way of interpreting his measurement of “decrease in value” is inconsistent with the definition of “value” he provided. As I explain in the remainder of this section, the impact on average willingness to pay from a product attribute in general will not be equal to the price premium associated with that attribute.

³⁸ For example, the Weir Report states that “[w]ith the price difference due to the [c]laims determined on a percentage basis, the calculation of [c]lass-wide damages for any [p]roduct will be: % Diminution in Value: Misrepresentation x \$Units Sold = Damages” (Weir Report, ¶ 36).

The first step in a damages study is the translation of the legal theory of the harmful event into an analysis of the economic impact of that event. In most cases, the analysis considers the difference between the plaintiff's economic position if the harmful event had not occurred and the plaintiff's actual economic position.

... The characterization of the harmful event begins with a clear statement of what occurred. The characterization also will include a description of the defendant's proper actions in place of its unlawful actions and a statement about the economic situation absent the wrongdoing, with the defendant's proper actions replacing the unlawful ones (the but-for scenario). Damages measurement then determines the plaintiff's hypothetical value in the but-for scenario. Economic damages are the difference between that value and the actual value that the plaintiff achieved.³⁹

35. Willingness to pay or average willingness to pay is not the same as market price, as Mr. Weir acknowledged in his deposition.⁴⁰ Instead, willingness to pay is a measure of the maximum amount that a consumer would be willing to pay for a particular good or service, a concept that is distinct from the product's price (the amount offered or paid to purchase a good).⁴¹ Willingness to pay is a demand-side factor. Different consumers typically have different willingness to pay for the same product, which is the reason why demand curves (which show the relationship between total quantity purchased and product prices) typically slope downward—that is, that greater quantities of a good are sold when prices are lower. As the price of a product drops, the number of consumers whose willingness to pay exceeds the product price increases, leading to a greater number of purchasers.

36. The actual prices paid for a particular product under a particular set of market conditions is not determined solely by willingness to pay—which is a determinant of demand—but also by supply conditions.⁴² Supply-side factors include production costs, competitor entry/exit, and competitor responses, among others.⁴³ It is the intersection of the

³⁹ Mark Allen, Robert E. Hall, and Victoria A. Lazear, "Reference Guide on Estimation of Economic Damages," in *Reference Manual on Scientific Evidence*, 3rd ed. (Washington, DC: The National Academies Press, 2011), p. 432.

⁴⁰ Deposition of Colin Weir, April 26, 2019 ("Weir April 2019 Deposition"), pp. 96:15–97:5.

⁴¹ N. Gregory Mankiw, *Principles of Microeconomics*, 5th ed. (Mason, OH: South-Western Cengage Learning, 2008), p. 138. *See also* Weir April 2019 Deposition, p. 95:12–24 ("When I use the term 'willingness to pay,' I think about the maximum amount that any one individual would be willing to pay for a product.").

⁴² *See, e.g.*, Walter Nicholson, *Microeconomic Theory: Basic Principles and Extensions*, 7th ed. (Orlando, FL: The Dryden Press, 1998), p. 11 ("... just as you cannot tell which blade of a scissors does the cutting, so too you cannot say that either demand or supply alone determines price.").

⁴³ Walter Nicholson, *Microeconomic Theory: Basic Principles and Extensions*, 7th ed. (Orlando, FL: The Dryden Press, 1998), Chapters 12 and 14.

supply and demand curves that determines market prices. Thus, average willingness to pay does not have a direct relationship to market prices—actual prices can be above or below average willingness to pay and may move in different amounts compared to changes in average willingness to pay. As this is true in both the real world (with the alleged misrepresentations) as well as the “but-for” world in which consumers are presented with “corrective statements” to address the challenged conduct, there is no economic basis for calculating damages by multiplying dollar sales by a percent change in the average willingness to pay across consumers, even if such a measure could be calculated reliably.

2. Use of a Willingness-to-Pay Measure Overstates Damages

37. As discussed above, willingness to pay represents the most that a consumer would be willing to pay for a product or attribute, and it differs across individuals. Consumers for whom market prices are above their willingness to pay will not buy, whereas consumers for whom market prices are below their willingness to pay will buy. As a result, actual prices paid by consumers who purchase a product will never be more than willingness to pay and are likely to be less.⁴⁴

38. As I explain in Section VII below, the Accused Products are differentiated products with different attribute combinations. Differentiated product markets are generally viewed as competitive, indicating that consumers will generally earn some surplus (the difference between willingness to pay and the product price). Thus, the use of a willingness-to-pay measure by Dr. Krosnick and Mr. Weir likely leads to an overestimate of damages even if willingness to pay were correctly measured.

C. Dr. Krosnick’s Diminution in Value Survey and Associated Analysis Are Flawed and Unreliable

39. I understand that the Hanssens Report addresses issues related to the design and implementation of Dr. Krosnick’s Diminution in Value Survey. In the sections below, I discuss concerns regarding the survey as an input to an economic demand analysis. My opinions here are independent of those of Professor Hanssens although they are consistent based on my understanding of his report.

⁴⁴ N. Gregory Mankiw, *Principles of Microeconomics*, 5th ed. (Mason, OH: South-Western Cengage Learning, 2008), p. 138.

1. Dr. Krosnick's Analysis Does Not Follow an Established Methodology for Estimating the Effect of a Change in a Product Attribute on Demand

40. There are numerous methods in economics for estimating the relationship between product attributes and prices for differentiated products. These methods include hedonic price analysis, the random utility-discrete choice modeling framework, and conjoint analysis.⁴⁵ These methods generally attempt to relate either the price (e.g., hedonic price analysis) or product choices⁴⁶ (e.g., random utility and conjoint analysis) to the attributes of products in a market. As a practical matter, these methods suffer from difficulties in implementation, especially when products contain a large number of attributes.⁴⁷ Still, the various methodologies support the idea that different attributes have different effects on demand, and the total amount of the effect depends on how strongly the feature affects quantity or price.⁴⁸ These methodologies also imply that the value of a product can be decomposed into the value contributions of its component attributes.⁴⁹

⁴⁵ Hedonic price analysis was first developed for understanding how attribute changes contribute to price changes in multi-attribute products. (For a historical perspective, see Zvi Griliches, "Hedonic Price Indexes and the Measurement of Capital and Productivity: Some Historical Reflections," *Fifty Years of Economic Measurement: The Jubilee of the Conference on Research in Income and Wealth, National Bureau of Economic Research Studies in Income and Wealth*, Vol. 54, pp. 185–206 (Chicago: University of Chicago Press, 1990).) This has been applied to construct price indexes for information technology products. See, e.g., Jack Triplett, "Handbook on Hedonic Indexes and Quality Adjustments in Price Indexes: Special Application to Information Technology Products," *OECD Science, Technology and Industry Working Papers*, No. 2004/9 (Paris: OECD Publishing, 2004). Random utility models are closely based on the Lancaster "goods-characteristics" framework. Kelvin J. Lancaster, "A New Approach to Consumer Theory," *Journal of Political Economy* 74, no. 2 (1966): 132–157. The empirical implementation of these models is usually associated with McFadden. See, e.g., Daniel McFadden and Kenneth Train, "Mixed MNL Models for Discrete Response," *Journal of Applied Econometrics* 15, no. 5 (2000): 447–470. Conjoint analysis is a marketing technique that enables the value of features to be established by consumer choice surveys or experiments rather than market data, relying on essentially the same foundation as random utility models. The original development of the method is attributed to Green and Rao. Paul E. Green and Vithala R. Rao, "Conjoint Analysis for Quantifying Judgmental Data," *Journal of Marketing Research* 8, no. 3 (August 1971): 355–363.

⁴⁶ When consumer-level data are available, models can be estimated on consumer choice. See, e.g., Daniel McFadden and Kenneth Train, "Mixed MNL Models for Discrete Response," *Journal of Applied Econometrics* 15, no. 5 (2000): 447–470. Related models can be estimated using market share data (which are simply the aggregation of individual consumers' choices) based on similar economic arguments. An example of such an approach is found in Steven T. Berry, "Estimating Discrete-Choice Models of Product Differentiation," *RAND Journal of Economics* 25, no. 2 (Summer 1994): 242–262; and in Steven Berry, James Levinsohn, and Ariel Pakes, "Automobile Prices in Market Equilibrium," *Econometrica* 63, no. 4 (July 1995): 841–890.

⁴⁷ These limitations have been examined in detail for hedonic models. Briefly, it may not be possible to adequately capture all the relevant attributes which can cause the estimates to be biased (i.e., too high or too low on average) and the model cannot be estimated if there are more attributes than products with different attribute combinations. See, e.g., R. Gordon, *The Measurement of Durable Goods Prices*, National Bureau of Economic Research (Chicago: University of Chicago Press, 1990), p. 196; Charles R. Hulten, "Price Hedonics: A Critical Review," *Federal Reserve Bank of New York Economic Policy Review* (September 2003): 5–15, at 9–10.

⁴⁸ See e.g., Greg M. Allenby, Jeff D. Brazell, John R. Howell, and Peter E. Rossi, "Economic Valuation of Product Features," *Quantitative Marketing and Economics* 12, no. 4 (December 2014): 421–456.

⁴⁹ See e.g., Greg M. Allenby, Jeff D. Brazell, John R. Howell, and Peter E. Rossi, "Economic Valuation of Product Features," *Quantitative Marketing and Economics* 12, no. 4 (December 2014): 421–456.

41. Dr. Krosnick's Diminution in Value Survey method does not fall under any of these categories. Dr. Krosnick stated in deposition that "the design of [his] study looks importantly different from most conjoint analyses in the academic literature."⁵⁰ In Mr. Weir's deposition, he also explained that the survey conducted by Dr. Krosnick (on which Mr. Weir relied for his damages method) "is not a conjoint survey."⁵¹ It is obvious that Dr. Krosnick's study is not a conjoint analysis because it does not consider the tradeoffs of different product attributes jointly—the phrase "conjoint" is used to represent a situation where attributes are "**considered jointly.**"⁵² Instead, respondents in Dr. Krosnick's survey are presented with one scenario, a single product with defined characteristics and a specific price, and asked a single question as to whether they would purchase or not purchase the product at the specified price point. Conjoint studies, on the other hand, typically manipulate several product attributes simultaneously and present a sequence of multiple choices to the same consumer.⁵³

42. The method employed by Dr. Krosnick to analyze his Diminution in Value Survey data is not a standard, well-accepted approach to demand estimation for retail consumer products. I was unable to find a precedent in the economics literature for the use of Dr. Krosnick's statistical method in the context of retail consumer products.⁵⁴ Based on a search on Scopus—one of the largest abstract and citation databases of peer-reviewed literature⁵⁵—the Watanabe (2010) paper has been cited by six studies in the ten years since publication, none of which are studies of demand for a retail consumer good.⁵⁶ I am unaware of any

⁵⁰ Krosnick May 2019 Deposition, p. 100:2–4.

⁵¹ Weir April 2019 Deposition, pp. 65:21–67:11.

⁵² Emphasis added. "The word 'conjoint' has to do with the fact that we can measure relative values of things considered jointly which might be unmeasurable taken one at a time." Richard M. Johnson, "Trade-Off Analysis of Consumer Values," *Journal of Marketing Research* 11 (May 1974): 121–127.

⁵³ Bryan K. Orme, *Getting Started with Conjoint Analysis: Strategies for Product Design and Pricing Research*, 3rd ed. (Manhattan Beach, CA: Research Publishers LLC, 2014), pp. 29–37.

⁵⁴ Mr. Weir also stated that he had no recollection of the use of the Lewbel-Watanabe approach in any case in which Dr. Krosnick was not involved (Weir April 2019 Deposition, p. 55:16–20), and was unable to cite any academic article or book stating that the Lewbel-Watanabe approach can accurately measure the market price of a consumer product (Weir April 2019 Deposition, p. 58:3–19) or an attribute of a consumer product (Weir April 2019 Deposition, p. 59:1–6). He also stated that he was not familiar with the steps involved in the Lewbel-Watanabe approach (Weir April 2019 Deposition, p. 56:9–20).

⁵⁵ Scopus website, <https://www.elsevier.com/solutions/scopus>.

⁵⁶ The six articles that cite Watanabe (2010) are: (1) Onil Banerjee et al., "Estimating Benefits of Investing in Resilience of Coastal Infrastructure in Small Island Developing States: An Application to Barbados," *Marine Policy* 90 (April 2018): 78–87; (2) Richard C. Bishop et al., "Putting a Value on Injuries to Natural Assets: The BP Oil Spill," *Science* 356, no. 6335 (April 21, 2017): 253–254; (3) Meseret G. Birhane et al., "Willingness to Pay for Dog Rabies Vaccine and Registration in Ilocos Norte, Philippines (2012)," *PLoS Neglected Tropical Diseases* 10, no. 3 (March 21, 2016); (4) Heechan Kang, Timothy C. Haab, and Matthew G. Interis, "Identifying Inconsistent Responses in Dichotomous Choice Contingent Valuation with Follow-Up Questions," *Resource and Energy Economics* 35, no. 3 (September 2013): 396–411; (5) Jorge E. Araña and Carmelo J. León, "Can Defaults Save the Climate? Evidence from a Field Experiment on Carbon Offsetting Programs," *Environmental*

academic support for using this method for estimating the demand for a product attribute for a retail consumer product.

43. In addition, as discussed below, Dr. Krosnick makes design and modeling choices that cause his results to be unreliable.

2. The Decision Setting in Dr. Krosnick's Diminution in Value Survey Does Not Resemble the Actual Purchasing Environment

44. Dr. Krosnick attempts to estimate what consumers would have done in the real world with his Diminution in Value Survey, but the decision process in his survey has no resemblance to the actual retail environment that consumers face when making purchasing decisions. To the extent that the information conditions and environment markedly differ between the survey environment and the actual retail purchasing environment, there is no reason to believe that choices made under different conditions replicate choices made in the real world.⁵⁷ Moreover, to the extent that different consumers differ in characteristics of their decision environment,⁵⁸ this introduces another source of variation across consumers that is not addressed by Mr. Weir's or Dr. Krosnick's analyses. These issues raise serious concerns about the reliability of Mr. Weir's and Dr. Krosnick's analyses to estimate damages.

45. More specifically, consumers typically have multiple choices, both within the same manufacturer (*e.g.*, Acana and Orijen from Champion), as well as products by different manufacturers (*e.g.*, Nestle Purina, Blue Buffalo). The presence of multiple products provides well-defined alternatives that are simultaneously considered at the time of purchase, and may provide useful information about product attributes or prices, or the relationship between attributes and prices. In contrast, respondents in Dr. Krosnick's Diminution in Value Survey have a single choice (to purchase or not purchase the product they are shown—either Orijen Six Fish or Acana Duck and Pear Singles Formula) at a specific price with no information about any product alternatives that may have different attributes or different

and Resource Economics 54, no. 4 (April 2013): 613–626; and (6) Marcella Veronesi, Anna Alberini, and Joseph C. Cooper, “Implications of Bid Design and Willingness-to-Pay Distribution for Starting Point Bias in Double-Bounded Dichotomous Choice Contingent Valuation Surveys,” *Environmental and Resource Economics* 49, no. 2 (June 2011): 199–215.

⁵⁷ “[S]evere demand effects can be particularly problematic when the survey design and related questions (a) suggest the correct answer and/or (b) cause respondents to make comparisons or consider relations and other aspects, which they would not have done outside the context of that study (*i.e.*, in the marketplace).” See Shari Diamond and Jerre Swann, eds., *Trademark and Deceptive Advertising Surveys: Law, Science, and Design* (Chicago: ABA Publishing, 2012), p. 244.

⁵⁸ Hanssens Report, ¶¶ 20, 140–141, 156–157.

prices. Thus, there is no way for any consumer to perceive tradeoffs among product attributes—for instance, the health or taste benefits of using fish products with an increased potential for mercury present naturally in fish products.

46. Consumers may be assisted by a retail sales representative or can obtain information from advertising, product literature, or other information sources such as online consumer product review or rating sites, and professional reviews.⁵⁹ In contrast, respondents in Dr. Krosnick's Diminution in Value survey have no information other than the images and text of the Champion product packaging and the corrective statements they were shown. This focus on a single product is unlike how consumers typically search for products (*e.g.*, not all consumers are likely to limit their product search behavior to information on a single product package).

47. In addition, to the extent there are product warning labels or other information on products, these are typically integrated into the product packaging or displayed alongside other information. Consumers can view information in any order that they choose, or choose to engage with or ignore information at their discretion. However, Dr. Krosnick's survey respondents were presented packaging information in sequence twice (first with images and then with text), followed by a number of randomly assigned corrective statements appearing immediately prior to product choice. Product purchase decisions that are made as a result of this type of product information presentation—which departs from the type of product information presentation consumers are likely to be exposed to in real-world settings—are likely to differ from the purchase decisions individuals would make in the real world.⁶⁰

48. Many consumers purchasing the Accused Products also have direct experience with the products through past purchase of the same brand or the same product. These consumers are likely to have very different preferences over product attributes or exhibit different choice behavior than consumers with no prior experience with the product. Indeed, a survey of dog owners commissioned by Champion found that the vast majority always feed their dog the same brand of dog food.⁶¹ In Dr. Krosnick's Diminution in Value Survey, only 6% of respondents indicated *ever* purchasing an Acana- or Orijen- branded dog food product.⁶²

⁵⁹ Hanssens Report, ¶¶ 17, 156–157.

⁶⁰ See Shari Diamond and Jerre Swann, eds., *Trademark and Deceptive Advertising Surveys: Law, Science, and Design* (Chicago: ABA Publishing, 2012), p. 244.

⁶¹ CPF0145434–538 at 458.

⁶² Hanssens Report, Table 2.

Thus, it is very likely that the respondents in Dr. Krosnick's survey were consumers who had considerably less information about Champion products than the population of prior purchasers. In addition, because consumers often experience disutility in switching product or service providers ("switching costs"),⁶³ the preferences of Champion purchasers likely also differ from preferences of Dr. Krosnick's survey population ("all adults living in the United States, age 18 and older") or even the preferences of dog owners or dog food purchasers in Dr. Krosnick's survey.⁶⁴

49. Collectively, these observations suggest problems with the purchase decision environment in Dr. Krosnick's Diminution in Value Survey, casting doubt on its reliability for evaluating consumer purchase behavior in both the actual and "but-for" worlds, and for estimating damages on a class-wide basis.

3. Dr. Krosnick Assumes That His "Percent Decrease in Value" Is Statistically Significant and Applicable across All of the Accused Products, But His Data Show This Assumption Is Incorrect

50. Dr. Krosnick assumes that his "percent decrease in value" is applicable to all of the Accused Products based only on the number of "corrective statements" applicable to each product.⁶⁵ That is, he assumes that all of the Accused Products—regardless of their specific formulation, size, date of sale, etc.—would experience the same "percent decrease in value" if the same *number* of corrective statements were shown to buyers. However, he provides no analysis supporting this assumption and, in fact, analysis of his Diminution in Value Survey data shows that this assumption is incorrect.

51. Respondents in Dr. Krosnick's survey were assigned to two groups randomly, where the first group saw the package and information for the Orijen Six Fish formulation, and the second group saw the package and information for the Acana Duck and Pear Singles Formula.⁶⁶ In his analysis, Dr. Krosnick combines the responses of the two groups to generate his "percent decrease in value" estimate that he claims is applicable to all of the

⁶³ Pei-yu Chen and Lorin M. Hitt, "Information Technology and Switching Costs" in *Handbook on Economic and Information Systems*, Terrence Hendershott, ed. (Elsevier, 2006); Paul Klempner, "Competition When Consumers Have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade," *Review of Economic Studies* 62, no. 4 (1995): 515–539.

⁶⁴ Krosnick Report Part 1, ¶ 52.

⁶⁵ See, e.g., Krosnick Report Part 1, ¶ 79.

⁶⁶ Krosnick Technical Report Part 1, ¶¶ 8–9.

Accused Products.⁶⁷ Dr. Krosnick provides no justification for analyzing the two groups together, and he apparently did not even attempt to analyze them separately. One cannot reliably assume, without support, that the effect of the number of corrective statements is the same across all of the Accused Products because all of the Accused Products are different from one another. For example, while the Orijen Six Fish formulation contains multiple sources of protein and is designed to “provide more calories from protein and fat … reducing the risk of obesity and diabetes,”⁶⁸ the Acana Duck and Pear Singles Formula “contains a single, easily digestible animal protein.”⁶⁹ Dr. Krosnick presents the results of his analysis and their statistical significance on pages 51 and 52 of the Krosnick Technical Report Part 1.⁷⁰

52. An analysis of Dr. Krosnick’s survey data shows that his results are not statistically different from zero (“statistically significant”) for respondents who saw the Orijen Six Fish package and information. Table 2 shows that the estimates of “percent decrease in value” are not statistically significant—at a commonly used 95% level of statistical confidence—for any number of “corrective statements” for Orijen Six Fish. In other words, using Dr. Krosnick’s own method, he cannot statistically distinguish the impact of the number of “corrective statements” on the estimate of “value” from zero.

⁶⁷ See support materials accompanying the Krosnick Report.

⁶⁸ “Orijen Six Fish,” Orijen website, <https://www.orijen.ca/foods/dog-food/dry-dog-food/six-fish-dog/>.

⁶⁹ “Acana Duck & Pear Singles Recipe,” Acana website, <https://acana.com/usa/our-foods/dog-foods/singles/duck-pear/>.

⁷⁰ The Krosnick Report Part 1 does not discuss the fact that one of the key results of the analysis—the estimate of the coefficient that measures the impact of the number of “corrective statements” on the variable that Dr. Krosnick uses to measure a respondent’s “value”—is *not* statistically significant at the 95% confidence level used commonly in empirical research in economics. The p-value of this coefficient (0.09, shown on page 51 of the Krosnick Technical Report Part 1) indicates that the hypothesis that the “corrective statements” *have no impact* on a respondent’s behavior *cannot be rejected* using standard levels of statistical confidence.

**Table 2: Estimated Percent Decrease in Value By Number of Corrective Statements
Orijen Six Fish Respondents Only**

Number of Corrective Statements	Percent Decrease in Value	Standard Error	z	p-Value
1	-8.2%	8.6%	-0.95	0.34
2	-15.7%	15.8%	-0.99	0.32
3	-22.6%	21.8%	-1.04	0.30
4	-28.9%	26.7%	-1.08	0.28
5	-34.7%	30.7%	-1.13	0.26
6	-40.1%	33.8%	-1.19	0.24
7	-45.0%	36.2%	-1.24	0.21
8	-49.5%	38.0%	-1.30	0.19

Source: Krosnick Report Part 1, Appendix B, p. 172; Supporting materials accompanying the Krosnick Report.

53. Table 3 shows that when the analysis is performed including only respondents who saw the Acana Duck and Pear Singles Formula, fewer estimates of “percent decrease in value” are statistically significant compared to the results in the Krosnick Report. The estimate of “percent decrease in value” is not statistically significant for up to five corrective statements shown to respondents. For both the analysis including only Orijen Six Fish respondents and the analysis including only Acana Duck and Pear Singles Formula respondents, the estimate of the coefficient that measures the impact of the *number* of “corrective statements” on the variable that Dr. Krosnick uses to measure respondents’ “value” is *not* statistically significant at a 95% confidence level (nor is it significant even when he combines the two groups of respondents).

**Table 3: Estimated Percent Decrease in Value By Number of Corrective Statements
Acana Duck and Pear Singles Formula Respondents Only**

Number of Corrective Statements	Percent Decrease in Value	Standard Error	z	p-Value
1	-12.2%	8.3%	-1.48	0.14
2	-22.9%	14.5%	-1.58	0.11
3	-32.3%	19.1%	-1.69	0.09
4	-40.5%	22.4%	-1.81	0.07
5	-47.8%	24.5%	-1.95	0.05
6	-54.2%	25.9%	-2.09	0.04
7	-59.7%	26.5%	-2.26	0.02
8	-64.6%	26.6%	-2.43	0.02

Source: Krosnick Report Part 1, Appendix B, p. 172; Supporting materials accompanying the Krosnick Report.

54. The results in Tables 2 and 3 above show that there is not a common set of “percent decrease in value” factors that can be applied across all of the Accused Products. In addition, this analysis shows that, from a statistical perspective, the number of corrective statements has no effect on consumers’ value of the Orijen Six Fish product. The results for Acana Duck and Pear Singles Formula are weak at best.

55. Apart from the issue of differing statistical results for the two Accused Products included in Dr. Krosnick’s survey, the statistical significance of Dr. Krosnick’s results depends critically on the form of the statistical model he chose to analyze the data. While Dr. Krosnick uses a non-linear model to arrive at his estimates⁷¹ (some of which are not statistically significant even in Dr. Krosnick’s analysis),⁷² performing the same analysis using a linear model causes the results to be non-significant. I note that Dr. Krosnick is aware that “Lewbel (2000) and Watanabe (2010) used linear models” in their analyses, yet he chose a non-linear model instead.⁷³ If one uses a linear model to analyze Dr. Krosnick’s data, the estimated impact of the number of “corrective statements” on Dr. Krosnick’s measurement of “value” is not statistically significant at a 95% confidence level for any number of “corrective

⁷¹ Krosnick Report Part 1, Appendix E, p. 332.

⁷² As shown in Table 1, Dr. Krosnick’s estimates of “percent decrease in value” for one and two corrective statements are not statistically significant at a 95% confidence level.

⁷³ Krosnick Report Part 1, Appendix E, p. 332.

statements.”⁷⁴ This result shows that the statistical significance of Dr. Krosnick’s estimates is driven by a modeling choice that deviates from the academic literature cited by Dr. Krosnick.⁷⁵

4. Dr. Krosnick’s Diminution in Value Survey Data Are Inconsistent with His Estimates of Percent Decrease in Value

56. My review of Dr. Krosnick’s raw Diminution in Value Survey data shows that they do not support Dr. Krosnick’s claim that each additional corrective statement causes a “decrease in value.” In addition, the behavior of respondents in Dr. Krosnick’s Diminution in Value Survey is inconsistent with the fundamental economic principle that, all else constant, consumers are less likely to buy a product at a higher price than at a lower price.⁷⁶ The fact that respondents in Dr. Krosnick’s survey do not behave in a manner consistent with rational economic behavior suggests that the survey is unreliable. Overall, the data show that respondents in the Diminution in Value Survey do not appear to be affected by the number of corrective statements that they saw, nor do they appear to be affected by higher prices.

57. Table 4 below shows the percentage of survey respondents who answered that they would buy the Champion product they viewed in the survey at the given price.⁷⁷ For example, among respondents who viewed four corrective statements and the base price, 14% said they would buy the product.

⁷⁴ To generate these results one must make a simple change in the section of Dr. Krosnick’s computer code that estimates the “percent decrease in value”—changing the estimation method from “poisson” to “gaussian.” When this change is implemented, the p-value of the coefficient associated with the variable “nmsg” (the number of messages shown to respondents) is 0.11. This same p-value applies to the effect of each of the different numbers of “corrective statements” shown to respondents, from one to eight.

⁷⁵ I understand Professor Hanssens has identified a number of other problems with Dr. Krosnick’s statistical analysis. For example, Dr. Hanssens points out that Dr. Krosnick does not consider the specific content of the “corrective statements” on his measure of “value,” (Hanssens Report, ¶¶ 17, 32–33), that there were very few respondents who saw zero or eight corrective statements (23 respondents each) (Hanssens Report, Table 1), that Dr. Krosnick failed to survey the relevant population (Hanssens Report, ¶¶ 47–56), and that respondents’ choices are insensitive to the price levels used in Dr. Krosnick’s survey (Hanssens Report, ¶¶ 63–74, Table 4), among others.

⁷⁶ The analysis of Dr. Krosnick’s Diminution in Value Survey data applies equally in *Reitman v. Champion*.

⁷⁷ The table includes respondents who were shown Acana Duck and Pear Singles Formula and respondents who were shown Orijen Six Fish. All the results that I describe in this section also hold when I analyze Acana Duck and Pear Singles Formula and Orijen Six Fish separately. Appendix 4 contains the tables and figures for each of these products.

Table 4: Percentage of Survey Respondents Answering That They Would Buy at the Specified Price Point, by Number of Corrective Statements Seen^[1]

Price ^[2]	Number of Corrective Statements Seen								
	0	1	2	3	4	5	6	7	8
Base Price Minus 10%	14%	30%	13%	13%	11%	15%	13%	3%	0%
Base Price Minus 5%	0%	3%	8%	14%	9%	10%	10%	9%	0%
Base Price	50%	8%	10%	11%	14%	11%	13%	13%	33%
Base Price Plus 5%	0%	14%	16%	11%	12%	11%	8%	10%	0%
Base Price Plus 10%	20%	9%	22%	14%	9%	6%	8%	10%	-
Total Number of Respondents	20	196	621	1,258	1,617	1,267	634	180	15

Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded. Blank cells represent combinations of Price and Number of Corrective Statements Seen with zero observations.

[2] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

58. If Dr. Krosnick’s conclusion is correct that the corrective statements cause a “decrease in value,” and specifically that each additional corrective statement causes a further decrease in value, then one would expect that, within each price level, the percent of respondents willing to buy the product would decrease as the number of corrective statements increases. In other words, when moving from left to right in a specific price level (a specific row) in Table 4, one would expect the percentages to decrease. The data do not display such a pattern, however.⁷⁸ Respondents do not appear to be influenced by the number of corrective statements they saw. For example, respondents who saw the base price minus 5% and two corrective statements were about as likely to answer “would buy it” (8% said they would buy the product) as respondents who received the same discount but seven messages (9% said they would buy the product).

59. Table 4 also shows that Dr. Krosnick’s Diminution in Value Survey data violate a fundamental economic principle: all else constant, higher prices lead to lower quantity demanded. In the context of Table 4, if the data were consistent with normal economic behavior, one would expect to see decreasing percentages as one moves down any particular

⁷⁸ Note that the estimated percentages for zero and eight corrective statements are based on very small sample sizes due to Dr. Krosnick’s design. These percentages are estimated so imprecisely as to be almost meaningless, as I discuss below.

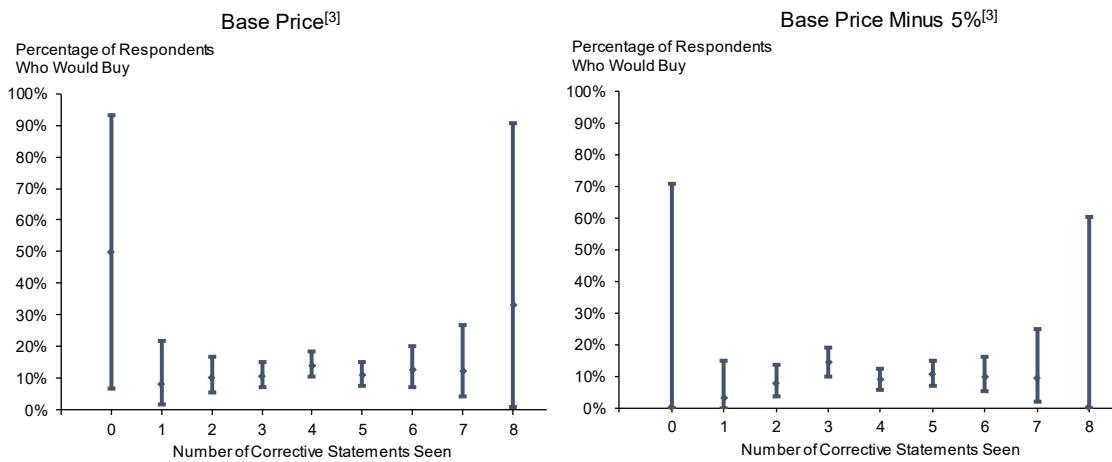
column (*i.e.*, increasing the price while keeping the number of corrective statements constant). However, no such pattern is evident in Dr. Krosnick's data. In other words, respondents are not less likely to answer "would buy it" if given higher prices. For example, consider the respondents who saw four corrective statements. Table 4 shows that 14% of the respondents who were given the base price said they would buy the product, but only 9% who were given the base price minus 5% said they would buy the product.

60. Figure 1 is another way to view the percentage of respondents who answered that they would buy the product at each number of corrective statements, while also illustrating the uncertainty in each estimated percentage. The percentages for the base price and the base price minus 5% are shown with 95% confidence interval bands.⁷⁹ Due to the design of Dr. Krosnick's survey, the number of respondents viewing four corrective statements was relatively high (1,617) and the number of respondents viewing more than four or fewer than four corrective statements was successively lower, with the number of respondents viewing zero or eight corrective statements the lowest (20 and 15, respectively). Therefore, the precision of the estimated percentages drops as one moves away from four corrective messages, as shown in Figure 1. In particular, the percentages for zero and eight corrective statements are extremely imprecisely estimated. In light of the data shown in Figure 1, it is difficult to comprehend how Dr. Krosnick could estimate that the effect of viewing eight corrective statements is a 59.6% decrease in value of the product, compared to seeing zero corrective statements. In fact, there is no pattern at all apparent in the data, especially taking into account the statistical uncertainty in the percentages (*i.e.*, the percentages for the different numbers of corrective statements are not statistically different). These data, which are essentially raw data from Dr. Krosnick's survey (*e.g.*, without performing a regression) show that Dr. Krosnick's results are untenable.⁸⁰

⁷⁹ Appendix 4 contains the figures for the other three prices. The results are similar.

⁸⁰ While Dr. Krosnick purportedly took pains to create indices based on control variables in order to include those indices in his regressions, in theory such controls should not be necessary for his analysis or for the analyses in Table 4 and Figure 1 here. Dr. Krosnick randomized respondents to the number of corrective statements, thus the groups of respondents seeing each number of corrective statements should be roughly balanced with respect to observable and non-observable characteristics. Respondents were also randomized with respect to prices.

Figure 1: Percentage of Survey Respondents Answering That They Would Buy at the Specified Price Point and Associated Confidence Intervals, by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded. The charts show the aggregate results for the two surveyed products: Orijen Six Fish and Acana Duck and Pear Singles.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

D. Mr. Weir Has Misunderstood and Misapplied Dr. Krosnick’s Diminution in Value Survey Results and He Has Failed to Propose a Reliable Method for Estimating Diminution in Value Damages

61. Mr. Weir has failed to propose a reliable method for estimating class-wide damages because he has misunderstood and misapplied the “percent decrease in value” calculated by Dr. Krosnick—a key input to his Diminution in Value Damages.⁸¹ Mr. Weir’s description of Dr. Krosnick’s analysis is inconsistent with the academic literature describing Dr. Krosnick’s methods, and more importantly, it is inconsistent with the description that Dr. Krosnick gives regarding his analysis. Because Mr. Weir has misinterpreted the results of Dr. Krosnick’s Diminution in Value Survey and misapplied them, his results do not represent what he states they represent. As detailed below, Mr. Weir has failed to propose a reliable methodology for his Diminution in Value Damages.

⁸¹ Weir April 2019 Deposition, p. 95:7–11.

62. Mr. Weir misunderstood Dr. Krosnick's analysis in multiple critical ways, which together cause him to misapply the results from the Krosnick Diminution in Value Survey. For instance, Mr. Weir described Dr. Krosnick's analysis as a "treatment and control" survey.⁸² He explained that, in Dr. Krosnick's survey, "you're only asking the treatment and control respondents to make their product choice once."⁸³ In contrast, Dr. Krosnick explained that "there isn't really a control group" in his survey, and the reason is because that was not the design of his survey.⁸⁴

63. Similarly, the Weir Report states that "Krosnick considered and accounted for supply side factors in the determination of his diminution in value calculation."⁸⁵ In contrast, Dr. Krosnick explained that supply-side factors such as Champion's costs, the price at which Champion was willing to sell its product, or Champion's willingness to reduce its prices played no role in "any of the work [he had] done."⁸⁶

64. Importantly, Mr. Weir has misunderstood the meaning of the "percent decrease in value" that Dr. Krosnick calculated. Mr. Weir explained his understanding of the "percent decrease in value" in the Krosnick Report, stating that "the calculus ... that Mr. Krosnick has done is not a calculus of the maximum willingness to pay. So this case does not rely upon willingness to pay as a way to calculate damages."⁸⁷ However, Mr. Weir is incorrect. As explained in Section V.B above, Dr. Krosnick's use of the "Lewbel-Watanabe" estimation approach to determine his "percent decrease in value" generates an estimate of the change in the average, or "mean," of the maximum willingness to pay of the survey respondents. This is confirmed by Dr. Krosnick's explanation of his methodology in deposition.

So the logic of the Turnbull method ... is to provide the average willingness to pay or the average value of the good for the sample of respondents based on this assumption that we -- we only know what you reveal through transactions about your -- a lower bound estimate of your willingness to pay. Might be more, but -- so that method is what Lewbel enhanced and Watanabe enhanced by adding little bells and whistles to it.⁸⁸

⁸² Weir April 2019 Deposition, pp. 40:18–23, 55:19–23, 57:1–5, 64:8–20, 65:21–24, 67:2–7.

⁸³ Weir April 2019 Deposition, p. 67:2–7.

⁸⁴ Krosnick May 2019 Deposition, p. 97:7–11.

⁸⁵ Weir Report, ¶ 15.

⁸⁶ Krosnick May 2019 Deposition, pp. 113:5–114:14.

⁸⁷ Weir April 2019 Deposition, p. 98:3–21.

⁸⁸ Krosnick May 2019 Deposition, pp. 118:21–119:4.

65. Mr. Weir's misunderstanding can be further demonstrated by analyzing the equations in Appendix E of the Krosnick Report Part 1, which provide the mathematical framework behind the Lewbel-Watanabe estimation approach.⁸⁹ Again, simply looking at the title of the article by Masahide Watanabe cited by Dr. Krosnick as support for the use of the Lewbel-Watanabe estimation approach—"Nonparametric Estimation of Mean Willingness to Pay from Discrete Response Valuation Data"⁹⁰—shows that Dr. Krosnick's analysis does rely on willingness to pay to estimate damages.

66. As described in Section V.B.1 above, the change in "value" that should be measured in a rigorous economic damages analysis is the change in the *market price* of the relevant product. While Mr. Weir seems to agree with the importance of measuring damages based on the change in market price,⁹¹ he seems to have misunderstood Dr. Krosnick's results and the meaning of Dr. Krosnick's "percent decrease in value" estimates. Mr. Weir misunderstood other important aspects of the Krosnick Diminution in Value Survey, but critically Mr. Weir failed to understand that Dr. Krosnick's estimates represent, *at best*, a measure of the change in average willingness to pay, so they cannot be used in the way Mr. Weir purports to do so. Because of this misunderstanding, Mr. Weir has misapplied the results of the Diminution in Value Survey and has failed to propose a reliable methodology for his Diminution in Value Damages that is tied to Plaintiff's theory of harm (*i.e.*, a change in market price).

VI. Neither Mr. Weir Nor Dr. Krosnick Accounts for Supply-Side Factors in Their Analyses and Thus They Cannot Make Inferences about Market Prices

A. Dr. Krosnick and Mr. Weir Do Not Account for Supply-Side Factors

67. Market prices result from the interaction of supply and demand.⁹² Yet the analysis performed by Dr. Krosnick is solely a demand-side analysis and does not take into account

⁸⁹ Equation (18) in Appendix E of the Krosnick Report Part 1 shows that the outcome of Dr. Krosnick's analysis is the expected value of the variable "W" conditional on the explanatory variable (or variables) in "X." The variable "W" is the value of a respondent's maximum willingness to pay, as evidenced in the first page of Appendix E. A similar set of equations appears in the Watanabe (2010) article, which tellingly uses the variable "WTP" (representing willingness to pay) in place of the variable "W" that Dr. Krosnick uses to define "value."

⁹⁰ Watanabe (2010), p. 1114.

⁹¹ See, e.g., Weir Report, ¶ 36.

⁹² This assertion is not contested by Mr. Weir. See, e.g., Weir Report, ¶ 22 ("... prices are set by the market, by the aggregate effects of all of the factors affecting supply and demand."); Weir April 2019 Deposition, pp. 102:15–103:7 ("I would agree that [the market for the Accused Products] has an interplay that existed historically as between demand and supply.").

any supply-side factors. Mr. Weir claims both his and Dr. Krosnick's analyses "account[] for supply side factors"⁹³ but this is false—not only is Dr. Krosnick's analysis purely a demand-side analysis, but most of Mr. Weir's discussion of supply-side factors does not refer to supply-side factors at all. Without accounting for both supply- and demand-side factors, it is not possible to make claims about market prices, which represent the interaction of supply and demand. This is well understood in both economics and in litigation contexts.⁹⁴

68. As explained in Section V above, Dr. Krosnick's results, even if they were correct, can only account for consumers' willingness to pay—a demand-side factor. Indeed, the word "supply" does not appear anywhere in Dr. Krosnick's report.⁹⁵ Yet the first statement in the section of the Weir Report titled "Supply Side Considerations" includes the claim that Dr. Krosnick "considered and accounted for supply side factors in the determination of his diminution in value calculation,"⁹⁶ and cites three passages in the Krosnick Report.⁹⁷ None of these relate to supply-side factors.

69. The first citation is simply a statement that Dr. Krosnick performed a survey using Champion product packaging.⁹⁸ This has nothing to do with supply. The remaining two references and related arguments by Mr. Weir focus on the assertion that using existing quantities and prices "account[s] for supply side factors."⁹⁹ Mr. Weir makes a similar assertion to support the claim that he "also considered supply side factors in [his] determination of damages."¹⁰⁰ I will address these claims in the following sections.

⁹³ Weir Report, ¶¶ 15–18.

⁹⁴ See, e.g., Hal R. Varian, "Chapter 13: Competitive Markets," in *Microeconomic Analysis* (New York: W. W. Norton & Company, 1992), pp. 215–232; Andreu Mas-Colell, Michael D. Whinston, and Jerry R. Green, "Chapter 10: Competitive Markets," in *Microeconomic Theory* (New York: Oxford University Press, 1995), pp. 311–349; Austan Goolsbee, Steven Levitt, and Chad Syverson, "Chapter 2: Supply and Demand," in *Microeconomics*, 2nd ed. (New York: Worth Publishers, 2016), pp. 11–51; Greg Allenby et al., "Using Conjoint Analysis to Determine the Market Value of Product Features," in *Proceedings of the Sawtooth Software Conference*, October 2013, pp. 341–355.

⁹⁵ Dr. Krosnick explained that supply-side factors such as Champion's costs, the price at which Champion was willing to sell its product, or Champion's willingness to reduce its prices played no role in "any of the work [he had] done." Krosnick May 2019 Deposition, pp. 113:5–114:14.

⁹⁶ Weir Report, ¶ 15. The Krosnick Report also does not refer to a "market"—identification of a relevant market is typically a first step into any analysis of market prices.

⁹⁷ Weir Report, footnote 16.

⁹⁸ Krosnick Report Part 1, ¶ 44.

⁹⁹ Weir Report, ¶ 15; Krosnick Report Part 1, ¶ 82; Krosnick Technical Report Part 1, ¶ 11.

¹⁰⁰ Weir Report, ¶¶ 16–19.

B. Holding Quantity Sold Fixed Does Not Account for Supply

70. The Weir Report claims that because the quantity sold in the actual world is known, that somehow accounts for supply-side factors in Mr. Weir's and Dr. Krosnick's analyses.¹⁰¹ This is not true. As an initial matter, the quantity sold is an *equilibrium market outcome* and thus is neither a supply nor a demand factor but is determined by the interaction of supply and demand.¹⁰²

71. That interaction of supply and demand is not accounted for by Plaintiff's experts. In fact, Dr. Krosnick does not even attempt to estimate any potential changes in Champion's willingness to sell an Accused Product (the determinant of supply) if additional disclosures were provided. Essentially, Plaintiff's experts assume that the quantity sold in the actual world would be the new equilibrium market quantity in the "but-for" world. Put differently, Plaintiff's experts make the unsupported and tenuous assumption that Champion would be willing to sell the *same* quantity of Accused Products, despite *lower* but-for prices.

72. Having the knowledge about the quantity sold in a specific time period does not eliminate the need to properly model supply and demand for the determination of "but-for" prices and the computation of economic injury:

Economic valuation of feature enhancement requires a valid and realistic demand system as well as cost information and assumptions about the set of competitive products.^{103, 104}

The appropriate comparison for analysis of consumer injury is between the price each consumer actually paid and the price the consumer would have paid in the "but-for" world where additional disclosures were provided.¹⁰⁵

¹⁰¹ Weir Report, ¶¶ 16–19. Dr. Krosnick also states in his report that "[b]ecause the number of units of each dog food sold is a known fact and fixed as a matter of history, it is possible to use the results of this survey to calculate damages in this case." Krosnick Report Part 1, ¶ 82.

¹⁰² Hal R. Varian, "Chapter 13: Competitive Markets," in *Microeconomic Analysis* (New York: W. W. Norton & Company, 1992), pp. 215–232.

¹⁰³ Greg Allenby et al., "Using Conjoint Analysis to Determine the Market Value of Product Features," in *Proceedings of the Sawtooth Software Conference*, October 2013, pp. 341–355.

¹⁰⁴ Allenby et al. (2013) further explain that "to assess the economic value of a feature to a firm requires conducting market simulations (a share of preference analysis) involving a realistic set of competitors, including the outside good (the 'None' category). Furthermore, it requires a game theoretic approach to compare the industry equilibrium prices with and without the focal product feature." See Greg Allenby et al., "Using Conjoint Analysis to Determine the Market Value of Product Features," in *Proceedings of the Sawtooth Software Conference*, October 2013, pp. 341–355.

¹⁰⁵ In his report, Mr. Weir suggests that if Champion would not have lowered its price in the "but-for" world, then the economic outcome would be that many or all of the purchases would not have taken place at all. Weir Report, ¶¶ 16–17. If that were the case, it does not mean that a full purchase price rebate would be an

73. As I explain in Section VII below, there is not a single market for dog food but many markets with different consumers who have different preferences and information, purchasing different products under different conditions. Hypothetically assuming that one could define an appropriate market or set of markets for analysis in this matter, it is still necessary to account for supply-side factors. Contrary to Mr. Weir's claim, in general it is not possible to predict the necessary price response to a change in demand in a competitive market without a complete characterization of supply and demand for all participants (i.e., dog food manufacturers); and it is certainly not possible with only *demand* information for some of the products of *one* participant (i.e., Champion).

74. In other words, to perform such an analysis, it is necessary to model both supply- and demand-side factors and jointly determine the equilibrium price that results from the profit-maximizing choices of Champion as well as other competitors that participate in the market. Neither Mr. Weir nor Dr. Krosnick has done any investigation into the factors that would be required for this analysis such as identifying competitors, characterizing the demand for substitute products, defining appropriate market boundaries, and identifying the cost structures of Champion and other participants.¹⁰⁶ Similarly, neither Mr. Weir nor Dr. Krosnick has demonstrated that such a model could be constructed or the necessary data obtained to reliably implement such an analysis.

75. Such an analysis is further complicated because the profit-maximizing price may involve non-price actions such as changing product packaging, promotional strategy, advertising, seeking independent evaluations or endorsements, or other strategies that would enable Champion to most profitably sell its products. To the extent that Mr. Weir's hypothesized reaction is restricted to changing product prices rather than the full range of strategies Champion could pursue, even if such price changes could be correctly calculated, it would overstate damages because Champion could only gain more profit from having more

appropriate economic remedy for two reasons. First, the consumer potentially received benefit from their use of the product that they purchased, which must be considered when determining damages. Second, it is unlikely that a consumer would not purchase any dog food if they did not purchase the Champion product. In this scenario, the injury is the difference in utility for the choice they made and the utility they would have received from the alternative choice. In markets where there are many similar products, this loss in utility can be very small, as there may exist one or more competing products with similar attributes at similar prices.

¹⁰⁶ See, e.g., Weir April 2019 Deposition, pp. 105:10–106:7 (“I did not look at specific competitor products...”), pp. 106:8–106:15 (“Q: Other than looking at the price of the [Accused Products], did you make any estimate of Champion's production costs? A: Again, I reviewed data on production costs, but those production costs are controlled for in Doctor Krosnick's survey and my analysis through the use of prices paid by consumers.”), pp. 104:17–104:22 (“Q: Did you look at the cost of retailing in this case? A: There was no need to....”).

flexibility to use non-price strategies when responding; it would never earn less profit because Champion could always ignore this flexibility and simply change price if that were optimal.

76. The analysis of the Accused Products is further complicated by the fact that Champion does not set retail prices for its products. I understand that Champion sells products to wholesalers, who then sell to independent retailers, who are free to set their own prices.¹⁰⁷ This additional layer of distribution adds an additional decision maker into the supply chain and its strategies and reactions would also need to be accounted for as it ultimately is the decision maker that sets retail prices.

C. The Use of Manufacturer's Suggested Retail Prices Does Not Account for Supply-Side Factors

77. The final citation in the Weir Report used to support the idea that Dr. Krosnick accounted for supply-side factors is a reference to a section of the Krosnick Technical Report that describes the design of Dr. Krosnick's Diminution in Value Survey.¹⁰⁸ The reference appears to be to the section discussing the use of MSRP, as well as prices within 10% of the MSRP, as the set of prices which were presented to consumers in the survey.¹⁰⁹ The fact that the survey included MSRP and prices in the vicinity of MSRP does not account for supply. Just as the quantity sold is a result of the interaction of supply and demand, price also results from the interaction of supply and demand. Price is not a supply-side factor.

78. As I explain in Section VII below, MSRP are not necessarily the actual prices paid by consumers, so they do not reflect all relevant supply-side factors in the actual world. More importantly, Plaintiff's own argument is that current prices would not be the correct prices in the "but-for" world, so MSRP could not account for supply-side factors in the "but-for" world.

79. An additional flaw in Dr. Krosnick's analysis is that the range of prices used in his Diminution in Value Survey is narrow and as such does not correspond to the analysis that is later done by Mr. Weir. While the prices shown to survey respondents are at most 10%

¹⁰⁷ Weir April 2019 Deposition, p. 115:1–22 ("[R]etailers had leeway to price at different prices"), pp. 118:15–119:11 ("Again, they are retailers. They are choosing to set the price.").

¹⁰⁸ Weir Report, footnote 16.

¹⁰⁹ Krosnick Technical Report Part 1, ¶¶ 11–16. Specifically, "[t]hese prices surrounded the manufacturer's suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above." Krosnick Technical Report Part 1, ¶ 14.

above or below MSRP, Mr. Weir performs his damages analysis assuming that prices in the “but-for” world would be 55% to 60% below MSRP, well outside the sample of prices that are actually offered to Dr. Krosnick’s respondents. Plaintiff’s experts therefore rely on the results of a statistical model that extrapolates an estimate of “percent decrease in value” outside the range of conditions actually presented to the survey respondents. Thus, the prices used in Dr. Krosnick’s analysis not only fail to “account[] for supply side factors,” but also limit the ability to make reliable inferences about demand under the conditions hypothesized by Plaintiff’s experts.

80. Overall, Plaintiff has not “accounted for supply side factors,” articulated a method of calculating consumer injury that could properly yield a comparison between actual and “but-for” market prices, or demonstrated that, if such a model could be created, it would be feasible to implement.

VII. There Is No Basis to Assume a Common Impact of the Challenged Conduct on the Putative Class Members

A. Dog Food Is a Differentiated Product, Therefore Changes in Product Characteristics Will Not Affect the Prices of All Products in the Same Way

81. Plaintiff’s experts’ Diminution in Value Damages analysis assumes that all consumers who purchased an Accused Product at any time during the proposed class period experienced a uniform injury.¹¹⁰ They determine this injury to be either 54.8% or 59.6% of the MSRP,¹¹¹ with the variation solely due to whether Plaintiff deems seven or eight “corrective statements” to apply to the particular Accused Product.¹¹² This assumption is inconsistent with the economics of the dog food market.

82. The dog food market is an example of what is termed a differentiated product market in economics. Differentiated product markets contain a large number of different products with different attribute combinations. The large number of products is intended to appeal to

¹¹⁰ Weir Report, ¶ 22 (“[A] market-based diminution in value percentage applies to all Class Members market-wide...”). The putative class period in this matter is July 1, 2014 through the present. Memorandum of Points and Authorities in Support of Plaintiff’s Motion for Class Certification dated August 15, 2019, p. 8.

¹¹¹ Krosnick Report Part 1, p. 30; Weir Report, Table 3.

¹¹² Mr. Weir testified that he relied on Plaintiff’s determination of the number of “corrective statements” applied to each particular product purchased, and that he did not independently determine the number of “corrective statements” applicable to the different Accused Products. Weir April 2019 Deposition, pp. 126:12–127:1.

consumers who have different preferences over product attributes.¹¹³ In contrast to commodity markets (*e.g.*, a share of IBM stock, or exchange-traded commodities like crude oil or wheat), there is no single market for differentiated products but many different markets including different consumers with different preferences and information, purchasing many different products from different sales channels at different prices.¹¹⁴ This diversity of underlying conditions makes it exceedingly unlikely that any change in product characteristics will affect the prices of all products in the same way, contrary to Plaintiff's assumptions.

83. One obvious way to observe that the dog food market is a differentiated market is the large number of different products simultaneously available in the marketplace. For instance, the Accused Products alone include dozens of different stock keeping units ("SKUs") representing 22 different formulations sold in multiple package sizes.¹¹⁵ However, the Accused Products only represent a small portion of the overall number of products available to dog food purchasers. For instance, various review and comparison sites suggest that there are hundreds of different dog food formulations available for purchase at any given time.¹¹⁶ These formulations differ along a number of dimensions including protein type (*e.g.*, chicken, fish), fat or grain content, dry versus freeze-dried food, and package size, among others.¹¹⁷ Dog food products are also produced by a large number of companies. For example, an industry study suggests that in 2017 there were 46 global pet food companies with more than \$100 million in sales.¹¹⁸

84. The Hanssens Report describes the different consumer preferences over different product attributes (*e.g.*, nutritional quality, meat content, ingredient freshness, among others) and how these preferences can change over time as the dietary requirements of the dogs

¹¹³ See *e.g.*, Jean Tirole, *The Theory of Industrial Organization* (Cambridge, MA: MIT Press, 1988), Chapter 7.

¹¹⁴ The Accused Products are examples of differentiated products. Mr. Weir testified that "different products with different prices [are sold] and those prices could change over time and retailers had leeway to price at different prices." Weir April 2019 Deposition, p. 115:1–15.

¹¹⁵ Complaint, ¶ 26; CPF0017614.xlsx; CPF0017743.xlsx.

¹¹⁶ As of May 7, 2019, the site www.dogfoodadvisor.com shows 520 reviews of dry dog food. See <https://www.dogfoodadvisor.com/dog-food-reviews/dry/all/>. A search on Amazon.com using the keyword "dog food" and filtering for "Bag Weight 16 to 25.9 Pounds" shows 574 products. A search on Google Express using the keyword "dog food" and filtering for "Size over 27lb" shows "500+ results."

¹¹⁷ See, *e.g.*, the various dog food products available on Acana's website: "Acana Heritage Red Meat Formula," <https://acana.com/usa/our-foods/dog-foods/for-dogs/red-meat/>; "Acana Regionals Wild Atlantic," <https://acana.com/usa/our-foods/dog-foods/regionals/wild-atlantic/>; "Acana Regionals Meadowland," <https://acana.com/usa/our-foods/dog-foods/regionals/meadowland/>.

¹¹⁸ *Petfood Industry*, May 2018, pp. 21–22, <http://www.petfoodindustry-digital.com/201805/index.php#/22>. Champion Petfoods is ranked 31st on this list.

change, or by the recommendation of important third parties such as veterinarians.¹¹⁹ Given this diversity of preferences, there is no reason to believe that a particular attribute (or changes to an attribute) would have exactly the same effect across a large group of consumers purchasing different products over many years.

85. Another key difference across dog food purchasers involves the potential differences in the information they have access to regarding the characteristics of the products they buy.¹²⁰ Differences in consumer access to information about product attributes can give rise to consumers paying different prices for the same product. For example, even in a process as simple as an Internet search, buyers can pay different prices for the same product (*e.g.*, Orijen Freeze Dried Regional Red Dog Food, 1-pound package) by selecting different websites (\$39.99 from Petco.com and \$65.00 from Pawnaturals.com).¹²¹

86. Differences in information may also give rise to different potential for harm. For instance, consumers who may already be aware of the information regarding some or all of the alleged misrepresentations or omissions that Plaintiff claims in this matter would be affected differently than other consumers (or not affected at all) by the addition of Dr. Krosnick's corrective statements to product packaging, and would have experienced different or no harm from the alleged misrepresentations. That is, to the extent that some putative class members—through their own research or knowledge—were aware of the potential for the substances at issue to be present in the Accused Products, and yet continued to buy them, these consumers could not have been harmed under Plaintiff's theory of non-disclosure. For example, Champion produced a white paper describing results of testing regarding the presence of heavy metals in its foods.¹²² Thus, at least some consumers were likely aware of the extent to which Champion products contain certain quantities of the various substances at issue in this case.

¹¹⁹ Hanssens Report, ¶¶ 143–155.

¹²⁰ For example, some buyers rely on the advice of veterinarians (Hanssens Report, ¶ 152), pet specialists (Hanssens Report, ¶ 153), store staff (Hanssens Report, ¶¶ 52, 153), and the reactions of their dogs (Hanssens Report, ¶ 151).

¹²¹ “ORIJEN Regional Red Freeze-Dried Dog Food, 16oz.,” <https://www.petco.com/shop/en/petcostore/product/orijen-regional-red-freeze-dried-dog-food>, visited on August 30, 2019; “Orijen Freeze-Dried Regional Red Dog Food,” https://pawnaturals.com/products/orijen-freeze-dried-regional-red-dog-food?variant=29574255870016¤cy=USD&gclid=EA1aIQobChMI2uL7sNer5AIVhLfsCh1UXACzEakYByABEgJE6_D_BwE, visited on August 30, 2019.

¹²² Complaint, ¶ 47.

87. Differences in information could also include general knowledge that buyers may have about the product or its ingredients. Five of the corrective statements used in Dr. Krosnick's survey refer to the "risk that [the] food may contain" mercury, cadmium, lead, arsenic, or BPA, and are not specific to a certain amount of these substances (or any presence at all).¹²³ The risk of presence of these substances in many of the ingredients of the Accused Products, either naturally occurring or as a result of human intervention, may be known to many consumers.¹²⁴ For example, it is widely known by consumers that fish generally, and wild caught fish specifically, have a risk of presence of mercury, and consumption should be limited to a specific level (especially for pregnant women, for whom there exist guidelines for how much to eat and what to avoid).¹²⁵ Buyers who are aware of the risk of presence of these substances could not have been harmed under Plaintiff's theory of non-disclosure.

88. Another characteristic that undermines the idea of a common price impact is that many product markets also show what economists refer to as "price dispersion," or variation in prices paid for the same product.¹²⁶ Price dispersion occurs because different information conditions—what consumers know about products and prices—make it rational for sellers to set different prices for the same product.¹²⁷ For example, price dispersion in Internet prices "may arise from two different sources of retailer heterogeneity: heterogeneity in customer awareness, and heterogeneity in retailer branding and trust."¹²⁸ Price dispersion in Internet prices can also sometimes be explained by differences in retailer reliability (e.g., on-time delivery, tracking), convenience (e.g., ease of ordering, product selection), availability of product information, and shipping and handling services.¹²⁹ Strategies for shipping can also

¹²³ Krosnick Technical Report Part 1, ¶ 10.

¹²⁴ See, e.g., "Metals," U.S. Food and Drug Administration, <https://www.fda.gov/food/chemicals-metals-pesticides-food/metals>; Shanti Menon, "Mercury Guide," NRDC, March 10, 2016, <https://www.nrdc.org/stories/mercury-guide>; "Bisphenol A (BPA) Factsheet," Centers for Disease Control and Prevention, https://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html.

¹²⁵ See, e.g., Shanti Menon, "Mercury Guide," NRDC, March 10, 2016, <https://www.nrdc.org/stories/mercury-guide>.

¹²⁶ Michael R. Baye et al., "Information, Search, and Price Dispersion," in *Handbook on Economic and Information Systems*, T. Hendershott, ed. (Elsevier, 2006). See also Hal R. Varian, "A Model of Sales," *American Economic Review* 70, no. 4 (September 1980): 651–659 ("Economists have belatedly come to recognize that the 'law of one price' is no law at all. Most retail markets are instead characterized by a rather large degree of price dispersion.").

¹²⁷ Michael R. Baye et al., "Information, Search, and Price Dispersion," in *Handbook on Economic and Information Systems*, T. Hendershott, ed. (Elsevier, 2006).

¹²⁸ Erik Brynjolfsson and Michael D. Smith, "Frictionless Commerce? A Comparison of Internet and Conventional Retailers," *Management Science* 46, no. 4 (2000): 563–585 at 580.

¹²⁹ Xing Pan, Brian T. Ratchford, and Venkatesh Shankar, "Can Price Dispersion in Online Markets Be Explained by Differences in E-Tailer Service Quality?," *Journal of the Academy of Marketing Science* 30, no. 4

be an important component in competition across Internet retailers, and “firms differ considerably in the qualities of shipping they offer and the shipping fees they charge.”¹³⁰

89. Thus, the prices for differentiated products vary both because the products are different (which gives rise to different supply and demand conditions), and because consumers face different information conditions. The result is that there is no single price for any product at any given time, but a diversity of prices.

90. The presence of differentiated products, differences in consumer preferences, and differences in information in the dog food market undermines the idea of common price impact. The heterogeneity in the market for the Accused Products indicates that the economic factors affecting demand (*e.g.*, preferences and information) as well as supply (*e.g.*, producer cost, products in the market, competitive interactions among manufacturers and among retailers) differ across products, consumers, and time, which is inconsistent with a single common market that Mr. Weir assumes. When there is not a common market, there is no reason to believe that a single factor or set of factors (such as the disclosures of the “corrective statements” in this case) would affect all product prices in the same way. This is true regardless of whether the analysis is done with actual price changes in dollar amounts or price changes in percentage amounts.

91. Plaintiff’s proposed methods do not account for any of the differences described above, instead assuming that all consumers’ willingness to pay was affected in the same way by the challenged conduct. Without properly accounting for variations in consumers’ preferences for product attributes, prices paid for the product, and the information available to purchasers regarding the alleged misrepresentations and omissions, Plaintiff can neither reliably calculate aggregate class-wide injury nor assign damages to individual members of the proposed class.

B. Mr. Weir’s Claim That “Individual Inquiry Is Not Required” Is Inconsistent with the Economics of the Markets for Dog Foods

92. Mr. Weir devotes a section of his report (Section VIII) to claiming that “individual inquiry is not required” for the purpose of calculating class-wide damages.¹³¹ The arguments

(2002): 433–445 at 436, 440; Michael D. Smith and Erik Brynjolfsson, “Consumer Decision-Making at an Internet Shopbot: Brand Still Matters,” *Journal of Industrial Economics* 49, no. 4 (2001): 541–558.

¹³⁰ Emin M. Dinersoz and Han Li, “The Shipping Strategies of Internet Retailers: Evidence from Internet Book Retailing,” *Quantitative Marketing and Economics* 4, no. 4 (2006): 407–438 at 431.

¹³¹ Weir Report, Section VIII.

presented in this section of the Weir Report rely on assumptions rather than analysis and are incorrect as a matter of economics. According to the Weir Report, the calculation of class-wide damages—and implicitly the value of a product to a consumer—does not depend on either how a consumer perceives that alleged attribute or the consumer’s product preferences.¹³² This conclusion is inconsistent with the economic theory of differentiated products, which posits that there is no single market price, and with the economic theory of demand, which posits that demand is determined by consumer preferences and information about product characteristics.¹³³

93. To support his incorrect conclusion that “individual inquiry is not required,” Mr. Weir claims that “[v]ariations in purchase price do not alter the calculation of total, class-wide damages.”¹³⁴ This is incorrect for at least two reasons. First, Mr. Weir is incorrect because, even accepting his methodology, he must apply Dr. Krosnick’s “percent decrease in value” to actual prices paid. Mr. Weir does not have actual prices paid but instead has either MSRP or estimates of MSRP.¹³⁵ To the extent that consumers of most products typically pay no more and often less than MSRP—either because of retailer discounting or due to promotional activities such as coupons or free trials (both of which occur in this market)¹³⁶—his aggregate class-wide damages will be overstated.¹³⁷

94. Second, a simple Internet search¹³⁸ shows that there is variation in posted prices for the same products at the same point in time.¹³⁹ This suggests that there is not a single

¹³² Weir Report, p. 17 (“Individual interpretation of the Misrepresentations is irrelevant to the determination of class-wide damages.”), p. 18 (“Individual behavior or use of the Champion Pet Foods is irrelevant to the determination of class-wide damages”; “Individual reasons for purchase do not change the price paid, or diminution in value experienced by an individual”).

¹³³ See, e.g., Steven Berry, James Levinsohn, and Ariel Pakes, “Automobile Prices in Market Equilibrium,” *Econometrica* 63, no. 4 (1995): 841–890; Simon P. Anderson, André De Palma, and Jacques-François Thisse, “Demand for Differentiated Products, Discrete Choice Models, and the Characteristics Approach,” *Review of Economic Studies* 56, no. 1 (1989): 21–35; Hal R. Varian, “A Model of Sales,” *American Economic Review* 70, no. 4 (September 1980): 651–659.

¹³⁴ Weir Report, p. 17.

¹³⁵ Weir April 2019 Deposition, pp. 141:2–148:2.

¹³⁶ See, e.g., CPF1337209, CPF1762620, CPF1792210, CPF1792212, CPF1792218, CPF1792220, CPF1792222, CPF1792224, CPF1792230, CPF1792232, CPF0254952.pptx (Slide 7). Retailers also rely on discounts and other pricing incentives.

¹³⁷ Furthermore, the fact that Mr. Weir is unable to determine the actual MSRP for years prior to 2016 (Weir April 2019 Deposition, p. 147:8–17) undermines any argument that he would be able to properly assign damages to consumers who purchased different products over a six-year time period at different retailers—all factors that would create price variation.

¹³⁸ Historical prices paid by buyers of the Accused Products are not readily available from Champion due to the fact that Champion does not sell directly to consumers.

¹³⁹ For example, a 4.5-pound package of Acana Heritage Free-Run Poultry was available from five different online retailers for five different prices, ranging from \$16.99 to \$30.95; a 25-pound package of Orijen Original was available from five different online retailers for five different prices, ranging from \$82.99 to \$127.95; and a

common market for the Accused Products, but rather many different markets that may have different characteristics at potentially different points in time (see also Section VII.A above). Plaintiff's proposed damages methodology is based on applying an aggregate estimate of "diminution in value percentage"—the same for all products with the same number of alleged misrepresentations—to a total sales number by product, aggregated across all package sizes, all purchase locations, and all purchase conditions over six years.¹⁴⁰ There is no theoretical or empirical guarantee that an aggregate damages estimate calculated in such a way will result in an estimate consistent with one that would be obtained by considering the differences in supply- and demand-side factors of the many markets in which the Accused Products are sold.

95. Mr. Weir makes a second argument to support his incorrect conclusion that "individual inquiry is not required." He states that "[i]ndividual reasons for purchase do not change the price paid."¹⁴¹ This claim is false and his supporting statement that "[s]helf prices do not adjust themselves for individual consumers"¹⁴² is irrelevant because, as he concedes¹⁴³ and is easily observable, even at a given point in time, different consumers are offered different prices for the Accused Products. While it is true that consumers do not negotiate individual prices in many retail environments, it is well understood that consumers have a variety of strategies that can affect the prices they pay, including waiting for promotions (and possibly stockpiling products at these times)¹⁴⁴ or shopping at lower-cost channels, altering purchase quantity, using coupons or other promotions either for the product or a retailer, or substituting from a higher-priced product to a lower-priced product offered by the same or different manufacturer, among others.

96. In further support of his flawed conclusion that "individual inquiry is not required," Mr. Weir also states that "[i]ndividual interpretation of the [m]isrepresentations" and "[i]ndividual behavior or use" of the Accused Products are "irrelevant to the determination of class-wide damages," and that "[i]ndividual reasons for purchase do not change the price

13-pound package of Orijen Tundra was available from five different online retailers for five different prices, ranging from \$66.99 to \$82.95. See backup materials.

¹⁴⁰ Weir Report, ¶¶ 21–23.

¹⁴¹ Weir Report, p. 18.

¹⁴² Weir Report, ¶ 48.

¹⁴³ Weir April 2019 Deposition, pp. 115:1–15, 117:7–13.

¹⁴⁴ David R. Bell, Ganesh Iyer, and V. Padmanabhan, "Price Competition under Stockpiling and Flexible Consumption," *Journal of Marketing Research* 39, no. 3 (August 2002): 292–303.

paid, or diminution in value experienced by an individual.”¹⁴⁵ These assertions rely on an assumption that “ALL consumers will have paid a higher price than if the truth had been disclosed.”¹⁴⁶ However, the assumption of a common market price or common movement of a market price is inconsistent with the economics of differentiated products and the economics of the dog food market in particular. Mr. Weir does not perform any analysis of this assumption or the conditions that would make this assumption appropriate. In addition, Mr. Weir does not perform any analysis of the market, simply adopting Dr. Krosnick’s survey results on willingness to pay.¹⁴⁷ Thus, this assumption, which is essential to Mr. Weir’s conclusion on damages, has no basis.

VIII. Dr. Krosnick’s Pentobarbital Survey Does Not Support Any Damages Estimation

97. In his second survey, the Pentobarbital Survey, Dr. Krosnick attempts to evaluate how “learning about the risk of the possible presence of a non-natural substance (pentobarbital) impact[s] consumers’ perceptions of the quality and healthiness of the dog foods.”¹⁴⁸ I understand that Dr. Hanssens addresses issues relating to the design of Dr. Krosnick’s survey instrument and Dr. Krosnick’s analysis and interpretation of the results of his Pentobarbital Survey.¹⁴⁹ Regardless of the merits of Dr. Krosnick’s survey instrument and Dr. Krosnick’s results and conclusions based on this instrument, the Pentobarbital Survey does not offer any analysis of diminution in value. Dr. Krosnick’s Pentobarbital Survey does not assess respondents’ purchase intent at all and does not include pricing information for the Champion products shown.¹⁵⁰ Consistent with this, Dr. Krosnick testified that he did not attempt to measure willingness to pay with his Pentobarbital Survey.¹⁵¹ As such, the Pentobarbital Survey does not provide any support for Mr. Weir’s calculation of Illegal Sales Damages or any other damages. I note that Mr. Weir does not cite to Dr. Krosnick’s Pentobarbital Survey

¹⁴⁵ Weir Report, pp. 17–18.

¹⁴⁶ Weir Report, ¶ 46, emphasis in original.

¹⁴⁷ Weir April 2019 Deposition, pp. 94:9–95:6 (“Q: Did you perform any analysis to estimate a diminution in price caused by the alleged misrepresentations? A: Again, I worked with Doctor Krosnick to help him design the survey in the ways that I’ve already discussed today, to measure that. I didn’t then re-measure that factor.... So other than doing those checks and understanding that treatment and control is a reliable peer-reviewed and well-accepted method, I didn’t go back and validate the results of Doctor Krosnick’s research.”).

¹⁴⁸ Krosnick Report Part 2, ¶ 47.

¹⁴⁹ Hanssens Report, Section VI.

¹⁵⁰ Krosnick Report Part 2, Appendix B.

¹⁵¹ Deposition of Dr. Jon A. Krosnick, August 27, 2019, pp. 8:19–9:6, 21:21–24.

as support for his estimate of Illegal Sales Damages, which are related to Plaintiff's pentobarbital claim.

IX. Mr. Weir Incorrectly Calculates Product Sales, Leading to an Overstatement of Actual Sales and Potential Damages

A. Calculation of Alleged Damages in the Weir Report

98. The Weir Report presents two sets of damages calculations that Mr. Weir calls Diminution in Value Damages and Illegal Sales Damages.¹⁵²

99. The Weir Report defines Diminution in Value Damages as those "wherein consumers would receive the diminution in value resulting solely as a result of Defendant's conduct of Misrepresenting the Champion Pet Food."¹⁵³ Mr. Weir explains that Diminution in Value Damages were calculated as the product of two quantities: (1) the dollar sales of the Accused Products made to the proposed class, and (2) the "price diminution in value factors" calculated by Dr. Krosnick.¹⁵⁴ According to the Weir Report, the calculation of the dollar sales to the proposed class is based on Mr. Weir's calculation of total U.S. retail sales of the Accused Products.¹⁵⁵

100. To calculate total U.S. retail sales of the Accused Products, Mr. Weir followed three steps. First, he calculated the kilogram sales of the Accused Products based on "kitchen data" produced by the Defendants.¹⁵⁶ Second, he estimated the number of units sold of the Accused Products by converting the kilogram sales from the first step into unit sales using a conversion factor for the number of kilograms contained in a package of a given size. For example, he used a factor of approximately 6 kilograms per package to convert kilogram sales data for 13-pound packages of Acana Meadowlands Dog Food into an estimate of the number of units sold.¹⁵⁷ Third, he calculated dollar sales of the Accused Products by

¹⁵² Weir Report, Sections VI and VII.

¹⁵³ Weir Report, ¶ 8.

¹⁵⁴ Weir Report, ¶¶ 36–37.

¹⁵⁵ Weir Report, ¶ 31.

¹⁵⁶ The data provide information on quantities produced in kilograms by product and by package size. See CPF0017743.xlsx; CPF0017614.xlsx; Weir April 2019 Deposition, pp. 152:4–153:24, 157:21–161:1.

¹⁵⁷ Weir Report, ¶ 26; Weir April 2019 Deposition, pp. 161:7–165:20. As a general rule, Mr. Weir assumes that package SKUs from 2013-2015 are measured in metric units (kilograms and grams) and that package SKUs from 2016-2018 are measured in English units (pounds and ounces). Weir Report, ¶ 29. See also file Sales and Damages Analysis.xlsx in the supporting materials accompanying the Weir Report.

multiplying his estimate of the number of units sold for each product by its respective MSRP from a file created by Dr. Krosnick.¹⁵⁸

101. The Weir Report defines Illegal Sales Damages as those for “Champion Pet Foods [that] should not have been sold at all” because they had a risk of containing pentobarbital.¹⁵⁹ Mr. Weir explains that Illegal Sales Damages are the total retail sales to putative class members for a subset of the Accused Products (Acana Heritage Red Meat, Acana Regionals Appalachian Ranch, and Orijen Regional Red).¹⁶⁰ The total retail sales considered in the calculation of Mr. Weir’s Illegal Sales Damages are determined in the same way as Mr. Weir’s Diminution in Value Damages, but only for the years 2016, 2017, and 2018 and only for the three relevant Accused Products.¹⁶¹

B. Mr. Weir’s Estimation Method Overstates Dollar Sales of the Accused Products

102. I understand that Champion products are sold through independent retailers who set their own prices and manage their own sales.¹⁶² As a result, I understand that Champion does not have access to reliable consumer sales data that span the entire proposed class period. Thus, Mr. Weir has to estimate retail sales of the Accused Products in order to calculate any damages.

103. Mr. Weir’s estimation method, if it were implemented correctly (which it was not as detailed in Section IX.C below), would systematically overstate dollar sales for at least two reasons discussed earlier. First, this computation focuses on quantities produced, *not* quantities sold. Accounting for variations in inventory, quantity produced will be more (and cannot be less) than quantity sold due to product spoilage, rejected production lots, and other supply chain factors (such as retail shrink).¹⁶³ Second, the use of MSRP will overstate sales to the extent that retailers are free to discount relative to MSRP or may offer various

¹⁵⁸ Weir Report, ¶ 28; Weir April 2019 Deposition, pp. 165:21–166:17. MSRP prices for 2013–2015 were not available, so Mr. Weir relied on price calculations performed by Dr. Krosnick. See Weir April 2019 Deposition, pp. 145:3–148:2; Champion Pricing Estimates 2013-2019.xlsx.

¹⁵⁹ Weir Report, ¶ 9.

¹⁶⁰ Weir Report, ¶¶ 39–40.

¹⁶¹ Weir Report, ¶ 41, Table 4; Weir April 2019 Deposition, pp. 173:18–175:13, 178:22–179:10.

¹⁶² See, e.g., “Trusted Pet Specialists,” Champion Petfoods, <https://www.championpetfoods.com/en-us/where-to-buy/>.

¹⁶³ “Shrink” is a blanket term covering numerous reasons why a product shipped to a retailer may not actually be sold. This could be due to stocking errors, improper documentation, lost items in transit, and employee theft, among others. See, e.g., Michael W. Maher, Clyde P. Stickney, and Roman L. Weil, *Managerial Accounting: An Introduction to Concepts, Methods and Uses*, 6th ed. (Orlando, FL: The Dryden Press, 1997), p. G-47.

promotions that lead to either free or reduced-price product sales. Mr. Weir has performed no corrections for any of these factors and thus will overstate damages by his method.¹⁶⁴

C. Errors in Mr. Weir's Calculations Further Overstate the Alleged Damages Amounts

1. Mr. Weir Commits Errors in Tabulating Total Sales That Inflate His Estimate of Diminution in Value Damages

104. Mr. Weir commits errors in calculating total U.S. sales that cause him to overstate his estimated Diminution in Value Damages.¹⁶⁵ Taken together, these errors cause Mr. Weir to overstate Diminution in Value Damages by \$842,907, or 9.7%, as shown in Table 5 below.

105. Mr. Weir makes two errors. First, Mr. Weir incorrectly includes all sales in 2013 and 2014 in his calculation of dollar sales to the proposed class.¹⁶⁶ Mr. Weir's inclusion of 2013 and 2014 sales in his calculations contradicts both the Weir Report and Plaintiff's motion for class certification in this matter.¹⁶⁷ The Weir Report assumes a class period that begins on July 1, 2013,¹⁶⁸ and Plaintiff's motion for class certification defines a class period that begins on July 1, 2014.¹⁶⁹ Assuming a correct class start date of July 1, 2014, the Weir Report includes 18 months of estimated sales that occurred before the beginning of the class period.¹⁷⁰ Using the July 1, 2014 start date causes Mr. Weir's Diminution in Value Damages estimates to decrease.

106. Second, for certain packages of certain Accused Products, Mr. Weir applies an incorrect package price. For example, for certain 2-kilogram packages of Acana Appalachian Ranch Dog, Mr. Weir incorrectly calculates dollar sales using the (higher) price of 13-pound packages, rather than the available price of 4.5-pound packages.¹⁷¹

¹⁶⁴ Weir April 2019 Deposition, pp. 145:3–148:2.

¹⁶⁵ Mr. Weir's calculations of damages, as well as my revisions to his calculations, rely on data that reflect the volume of Champion products produced. These data were provided by Champion (CPF0017614.xlsx and CPF0017743.xlsx).

¹⁶⁶ See Sales and Damages Analysis.xlsx.

¹⁶⁷ The Memorandum of Points and Authorities in Support of Plaintiff's Motion for Class Certification was submitted to the court two days after the submission of the Weir Report.

¹⁶⁸ Weir Report, fn. 2, ¶ 25.

¹⁶⁹ Memorandum of Points and Authorities in Support of Plaintiff's Motion for Class Certification dated August 15, 2019, p. 8.

¹⁷⁰ Even assuming that July 1, 2013 were the operative start of the class period, Mr. Weir's calculation of dollar sales in the Weir Report still incorrectly includes six months of estimated sales (January 2013–June 2013). See Weir Report, fn. 2, ¶ 25; Sales and Damages Analysis.xlsx.

¹⁷¹ For 2-kilogram packages of Acana Appalachian Ranch Dog, which appear only in 2017 and 2018, Mr. Weir incorrectly applies the price of the 13-pound package of this product. According to the Weir Report, the price

Table 5: Weir-Style Diminution in Value Damages^[1]
Before and After Corrections
 2014 H2 – 2018

Product	As Shown in the Weir Report [A]	Corrected for Errors in Calculations and Assumptions ^[2] [B]	Overstatement of Damages Estimate [C] = [A] - [B]	Decline in Damages Estimate [D] = ([B] - [A]) / [A]
ACA_APPALACHIAN_RANCH_DOG	\$557,407	\$438,009	\$119,399	-21.4%
ACA_DUCK_PEAR	\$399,066	\$356,439	\$42,627	-10.7%
ACA_FREE_RUN_POULTRY	\$353,124	\$353,124	-	0.0%
ACA_FRESHWATER_FISH	\$179,215	\$179,215	-	0.0%
ACA_HERITAGE_MEATS	\$354,794	\$354,794	-	0.0%
ACA_KY_GRASSLANDS_DOG	\$499,758	\$366,471	\$133,287	-26.7%
ACA_LAMB_APPLE	\$432,302	\$394,144	\$38,158	-8.8%
ACA_MEADOWLANDS_DOG	\$422,881	\$422,881	-	0.0%
ACA_PORK_SQUASH	\$297,116	\$274,920	\$22,196	-7.5%
ACA_Wild_Atlantic_Dog	\$331,842	\$331,842	-	0.0%
ORI_6_FISH_DOG	\$1,221,155	\$1,050,678	\$170,477	-14.0%
ORI_FDF_ADULT	\$41,652	\$38,006	\$3,647	-8.8%
ORI_FDF_REGIONAL_RED	\$55,249	\$49,660	\$5,589	-10.1%
ORI_FDF_TUNDRA	\$67,905	\$64,119	\$3,786	-5.6%
ORI_ORIGINAL	\$1,120,756	\$1,120,756	-	0.0%
ORI_PUPPY	\$564,777	\$445,757	\$119,019	-21.1%
ORI_REGIONAL_RED_DOG	\$1,154,314	\$969,591	\$184,722	-16.0%
ORI_TUNDRA_DOG	\$669,647	\$669,647	-	0.0%
Total	\$8,722,963	\$7,880,056	\$842,907	-9.7%

Source: Weir Report, ¶¶ 36–37, Table 3; Krosnick Report Part 1, p. 30; Sales and Damages Analysis.xlsx; CPF0017614.xlsx; CPF0017743.xlsx; Champion Pricing Estimates 2013–2019.xlsx; Kitchen Production Analysis-WI.do; Memorandum of Points and Authorities in Support of Plaintiff’s Motion for Class Certification dated August 15, 2019, p. 8.

Note:

[1] Diminution in Value damages are equal to total U.S. retail sales during the alleged class period for each Accused Product multiplied by 1.47% (Mr. Weir’s estimate of WI retail sales) multiplied by a “diminution in value factor” of 54.8% applied to sales of Acana Freshwater Fish, Acana Kentucky Grasslands Dog, Orijen FDF Regional Red, and Orijen Original, and 59.6% applied to sales of other Accused Products.

[2] The Weir Report’s damages calculations include all sales in 2013 and 2014. The corrected damages calculations limit dollar sales to the class period defined in Plaintiff’s motion for class certification as beginning on July 1, 2014. For certain 2-kilogram packages of Acana Appalachian Ranch Dog, Mr. Weir incorrectly calculates dollar sales using the price of 13-pound packages. The corrected damages calculations assigns the price of a 4.5-pound package to these products. The Weir Report also incorrectly applies the price of a 13-pound package to packages Mr. Weir defined as 13 kilograms for certain packages of Acana Duck & Pear, Acana Lamb & Apple, Orijen Puppy, and Orijen Six Fish in the years 2013 to 2016. The corrected damages calculation assigns the price of a 25-pound package to these products. In addition, the Weir Report incorrectly applies the price of a 13-pound package to 0.75-ounce packages of Orijen FDF Regional Red. The corrected damages calculations excludes these packages.

applied should be the price of the closest product available in the data based on package size, which for a 2-kilogram package is the 4.5-pound package. Similarly, Mr. Weir erroneously calculates dollar sales of certain 13-kilogram packages (Acana Duck & Pear, Acana Lamb & Apple, Orijen Puppy, and Orijen Six Fish in the years 2013 to 2016) by using the price of a 13-pound package, rather than the available price of a 25-pound package. In addition, Mr. Weir incorrectly applies the price of a 13-pound package to 0.75-ounce packages of Orijen FDF Regional Red. According to the Weir Report, the price applied should be the closest price available in the data based on package size, which for 0.75-ounce packages is 6 ounces. However, given the small size of this package relative to the available pricing data, I chose to remove this from the total dollar sales calculation (which is the approach adopted by Mr. Weir in his supplemental expert report in *Reitman v Champion*). See Weir Report, ¶ 30; Sales and Damages Analysis.xlsx; Champion Pricing Estimates 2013–2019.xlsx; Sales and Damages Analysis-CA.xlsx supporting the Supplemental Declaration of Colin B. Weir, June 20, 2019.

2. Mr. Weir Commits Errors in Tabulating Total Sales That Inflate His Estimate of Illegal Sales Damages

107. Mr. Weir also commits errors in calculating total sales that cause him to overstate his estimated Illegal Sales Damages. Taken together, these errors cause him to overstate his Illegal Sales Damages by at least \$376,123, or 16.9%, as shown in Table 6 below.¹⁷²

108. Mr. Weir makes two errors. First, as with his estimate of Diminution in Value Damages, Mr. Weir incorrectly applies the price of a 13-pound package to certain 2-kilogram packages of Acana Appalachian Ranch Dog. Using the correct price causes Mr. Weir's estimated Illegal Sales Damages to decrease.¹⁷³

109. Second, Mr. Weir also makes an erroneous assumption regarding the relevant period for his Illegal Sales Damages. I understand from counsel that Champion did not begin purchasing beef tallow from JBS, the supplier of the allegedly contaminated tallow, until October 2016. Clearly, Champion products bought before October 2016 did not carry any risk of containing pentobarbital from the beef tallow at issue. However, Mr. Weir includes sales from all of 2016 in his calculation of Illegal Sales Damages.¹⁷⁴ Correctly limiting the period of retail sales of the three Accused Products in 2016 to begin in October causes Mr. Weir's Illegal Sales Damages to decrease.

¹⁷² Regardless of the errors in his calculations, I note that Mr. Weir provides no economic basis for his full refund Illegal Sales Damages.

¹⁷³ For 2-kilogram packages of Acana Appalachian Ranch Dog, which appear only in 2017 and 2018, Mr. Weir incorrectly applies the price of the 13-pound package of this product. According to the Weir Report, the price applied should be the price of the closest product available in the data based on package size, which for a 2-kilogram package is the 4.5 pound package. *See Weir Report, ¶ 30.*

¹⁷⁴ Weir Report, ¶ 41, Table 4; Sales and Damages Analysis.xlsx.

**Table 6: Weir-Style Illegal Sales Damages^[1]
Before and After Corrections
October 2016 – 2018**

Product	As Shown in the Weir Report	Corrected for Errors in Calculations and Assumptions ^[2]	Overstatement of Damages Estimate	Decline in Damages Estimate
				[C] = [A] - [B] [D] = ([B] - [A]) / [A]
ACA_APPALACHIAN_RANCH_DOG	\$509,763	\$385,338	\$124,425	-24.4%
ACA_HERITAGE_MEATS	\$595,291	\$554,824	\$40,467	-6.8%
ORI_REGIONAL_RED_DOG	\$1,120,832	\$909,602	\$211,231	-18.8%
Total	\$2,225,886	\$1,849,764	\$376,123	-16.9%

Source: Weir Report, ¶ 41, Table 4; Krosnick Report Part 1, p. 30; Sales and Damages Analysis.xlsx; CPF0017614.xlsx; CPF0017743.xlsx; Champion Pricing Estimates 2013-2019.xlsx; Kitchen Production Analysis-WI.do.

Note:

[1] Illegal Sales Damages are equal to total U.S. retail sales during the years of 2016, 2017, and 2018 multiplied by 1.47% (Mr. Weir's estimate of WI retail sales).

[2] The Weir Report's damage calculations include all sales in 2016. The corrected damage calculations limit 2016 sales to October through December, as I understand from counsel that Champion did not begin purchasing beef tallow from JBS, the supplier of the allegedly contaminated tallow, until October 2016. In addition, for certain 2-kilogram packages of Acana Appalachian Ranch Dog, Mr. Weir incorrectly calculates dollar sales using the price of 13-pound packages. The corrected damages calculations assigns the price of a 4.5-pound package to these products.

110. Even using October 2016 as a start date is overly inclusive, because I understand that the beef tallow that tested positive for pentobarbital was delivered to Champion in *March 2018*.¹⁷⁵ Mr. Weir's start date of January 2016 is over two years before the delivery of the allegedly contaminated tallow, and even using October 2016 as a start date yields damages for 17 months *before* the delivery of the allegedly contaminated tallow.

111. Mr. Weir's unsupported and flawed approach to counting the sales of the products allegedly containing pentobarbital in Wisconsin overestimates damages and would overcompensate the putative class members.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge, information, and belief, and that this declaration is executed at Hillsboro, Oregon, this 12th day of September, 2019.

¹⁷⁵ CPF2118814-19.



Lorin M. Hitt

Appendix 1

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Educational History

Massachusetts Institute of Technology	Ph.D. Management (1996) Concentration in Information Technology and Economics Dissertation Title: "Economic Analysis of Information Technology and Organization" Committee: Erik Brynjolfsson (MIT, chair), Zvi Griliches (Harvard), Thomas W. Malone (MIT)
Brown University	M.S. Electrical Engineering (1989)
Brown University	Sc.B. Electrical Engineering with Honors, Magna Cum Laude (1988)

Employment History

University of Pennsylvania, Wharton School, Philadelphia, PA. *Zhang Jindong Professor, Operations, Information and Decisions Department (formerly OPIM)* (2015-present).

University of Pennsylvania, Wharton School, Philadelphia, PA. *Dean's Chair Professor, Department of Operations and Information Management* (2014-2015).

University of Pennsylvania, Wharton School, Philadelphia, PA. *Professor of Operations and Information Management, Department of Operations and Information Management* (2013-2014).

University of Pennsylvania, Wharton School, Philadelphia, PA. *Class of 1942 Professor (Term Chair), Department of Operations and Information Management* (2008-2013).

University of Pennsylvania, Wharton School, Philadelphia, PA. *Alberto Vitale Term Associate Professor of Operations and Information Management* (2002-2008).

University of Pennsylvania, Wharton School, Philadelphia, PA. *Alberto Vitale Term Assistant Professor of Operations and Information Management* (2000-2002).

University of Pennsylvania, Wharton School, Philadelphia, PA. *Assistant Professor of Operations and Information Management* (1996-2000).

Massachusetts Institute of Technology, Industrial Performance Center, Cambridge, MA.
Graduate Fellow (1995-1996).

Massachusetts Institute of Technology, Center for Coordination Science, Cambridge, MA.
Research Assistant (1992-1996).

Brown University, Department of Engineering, Providence, RI and IBM T.J. Watson Research Center, Yorktown Heights, NY. *Graduate Research Assistant (1988-89).*

Brown University, Department of Engineering, Providence, RI. *Research Assistant (1987-88).*

Oliver Wyman and Company, New York, NY. *Consultant (1989-1992).*

Harry Diamond Laboratories, Adelphi, MD. *Engineering Technician (1984-87).*

Articles Published in Refereed Journals

1. Wu, Lynn, Hitt, Lorin M. and Bowen Lou (forthcoming). “Data Analytics Supports Decentralized Innovation Communities,” *Management Science*.
2. Wu, Lynn, Hitt, Lorin M. and Bowen Lou (forthcoming). “Data Analytics Skills, Innovation and Firm Productivity,” *Management Science*.
3. Bavafa, Hessam and Hitt, Lorin M. and Terwiesch, Christian (2018), “The Impact of E-Visits on Visit Frequencies and Patient Health: Evidence from Primary Care,” *Management Science* 64(12): 5461-5959
4. Tan, Fangyun, Netessine, Sergei and Lorin M. Hitt (2017). “Is Tom Cruise Threatened? An Empirical Study of the Impact of Product Variety on Demand Concentration,” *Information Systems Research* 28(3): 643-660.
5. Avgar, Ariel, Tambe, Prasanna and Lorin M. Hitt (2018). “Built to Learn: How Work Practices Affect Employee Learning During Healthcare Information Technology Implementation,” *MIS Quarterly* 42(2): 645-659 (a previous version appeared as “The Effects of Organizational Factors on Healthcare IT Adoption Costs: Evidence from New York Nursing Homes,” *Proceedings of the 2009 Hawaii International Conference on Systems Sciences: HICSS-43.*)
6. Wu, Lynn, Jin, Fujie and Lorin M. Hitt (2018). “Are All Spillovers Created Equal? A Network Perspective on IT Labor Movement,” *Management Science* 64(7): 2973-3468. (A previous version appeared as: Wu, Lynn, Jin, Fujie and Lorin M. Hitt (2014). “Are All Spillovers Created Equal? A Network Perspective on IT Labor Movements,” *Proceedings of the 33rd Annual International Conference on Information Systems.*)
7. Hitt, Lorin M. and Prasanna Tambe (2016). “Health Care Information Technology, Work Organization and Nursing Home Performance,” *ILR Review* (69): 834-859.
8. Tambe, Prasanna and Lorin M. Hitt (2014). “Measuring Information Technology Spillovers,” *Information Systems Research* 25(1):53-71. (A previous version appeared as: Hitt, Lorin M. and Sonny Tambe (2006). “Measuring Spillovers from Information Technology Investments,” *Proceedings of the 25th Annual International Conference on Information Systems*)

9. Tambe, Prasanna and Lorin M. Hitt (2014). "Job Hopping, Information Technology Spillovers and Productivity Growth," *Management Science* 60(2): 338-355. (A previous version appeared as: Tambe, Sonny and Lorin M. Hitt (2010). "Job Hopping, Knowledge Spillovers, and Regional Returns to Information Technology Investments," *Proceedings of the 29th Annual International Conference on Information Systems.*) (Finalist, Management Science Best Paper Award IS Area, 2015; Winner Management Science Best Paper Award IS Area, 2016).
10. Wu, D.J., Ding, Ming, and Lorin M. Hitt (2013). "IT Implementation Contract Design: Analytical and Experimental Investigation of IT Value, Learning and Contract Structure," *Information Systems Research* 24(3). 787-801 (A previous version appeared as: Wu, D.J., Ding, Min and Lorin M. Hitt (2003). "Learning in ERP Contracting: A Principal-Agent Analysis," *Proceedings of the 37th Annual Hawaii International Conference on System Sciences*, Honolulu, HI.)
11. Gao, Gordon and Lorin M. Hitt (2012) "IT and Trademarks: Implications for Product Variety" *Management Science* 58(6): 1211-1226. [A previous version appeared as: Gao, Gordon and Lorin M. Hitt (2004). "IT and Product Variety: Evidence from Panel Data," *Proceedings of the 25th Annual International Conference on Information Systems*, Washington, D.C. (Runner-up – Best Paper Award)]
12. Tambe, Prasanna and Lorin M. Hitt (2012). "Information Technology and Productivity 1987-2006: Evidence from New Firm-Level Data," *Information Systems Research* 23(9):599-617. (Winner of the ISR 2013 Best Paper Award).
13. Field, Joy, Xue, Mei and Lorin M. Hitt (2012) "Learning by customers as co-producers in financial services: An empirical study of the effects of learning channels and customer characteristics," *Operations Management Research* 4(1-2), June: 43-56.
14. Tambe, Prasanna and Lorin M. Hitt (2012). "Now IT's Personal: Offshoring and the Shifting Skill Composition of the US Information Technology Workforce," *Management Science* 58(4): 678-695. [A previous version appeared as: Tambe, Sonny and Lorin M. Hitt (2010). "Now IT's Personal: Offshoring and the Shifting Skill Composition of the US Information Technology Workforce," *Proceedings of the 29th Annual International Conference on Information Systems*] (Finalist, Management Science Best Paper Award IS Area, 2014).
15. Tambe, Prasanna, Hitt, Lorin M. and Erik Brynjolfsson (2012). "The Extroverted Firm: How External Information Practices Affect Productivity," *Management Science* 58(5): 843-859. [A prior version appeared as: Tambe, Sonny, Hitt, Lorin M. and Erik Brynjolfsson (2008). "The Extroverted Firm," *Proceedings of the 27th Annual International Conference on Information Systems*] (Runner-Up, INFORMS Times Best Paper Award, 2017)
16. Li, Xinxin, Hitt, Lorin M. and Z. John Zhang (2011). "Product Reviews and Competition in Markets for Repeat Purchase Products," *Journal of Management Information Systems* 27(4): 9-42.
17. Hitt, Lorin M, Xue, Mei, and Pei-Yu Chen (2011). "The Determinants and Outcomes of Internet Banking Adoption," *Management Science* 57(2): 291-307.
18. Li, Xinxin and Lorin M. Hitt (2010). "Price Effects in Online Product Reviews: An Analytical Model and Empirical Analysis," *MIS Quarterly* 34(4): 809-831.
19. Tambe, Prasanna and Lorin M. Hitt (2010). "How Does Offshoring Affect IT Workers?" *Communications of the ACM* 53(10): 72-82.

20. Li, Xinxin and Lorin M. Hitt (2008). "Self Selection and the Information Role of Product Reviews," *Information Systems Research* 19(4): 456-474.
21. Wu, Shin-Yi, Hitt, Lorin, Chen, Pei-Yu, and G. Anandalingam (2008) "Customized Bundle Pricing for Information Goods: A Nonlinear Mixed Integer Programming Approach," *Management Science* 54(3): 608-622.
22. Hitt, Lorin M. and Sonny Tambe (2007) "Broadband Adoption and Content Consumption," *Information Economics and Policy* 19(3-4): 362-378.
23. Xue, Mei, Hitt, Lorin M. and Patrick T. Harker (2007). "Customer Efficiency, Channel Usage and Firm Performance in Retail Banking," *Manufacturing and Service Operations Management* (9): 535-558.
24. Eric K. Clemons, Gao, Gordon and Lorin M. Hitt (2006). "When Online Reviews Meet Hyperdifferentiation: A Study of the Craft Beer Industry," *Journal of Management Information Systems* 23(2): 149-171 (a previous version appeared in the *Proceedings of the 37th Annual Hawaii International Conference on System Sciences*, Honolulu, HI).
25. Jacobides, Michael G. and Lorin M. Hitt (2005). "Vertical Scope, Revisited: Transaction Costs vs. Capabilities and Profit Opportunities in Mortgage Banking," *Strategic Management Journal* 26(13): 1209-1227.
26. Hitt, Lorin M. and Pei-Yu Chen (2005). "Bundling with Customer Self-Selection: A Simple Approach to Bundling Low Marginal Cost Goods," *Management Science* 51(10): 1481-1493.
27. Clemons, Eric K. and Lorin M. Hitt (2004). "Poaching and the Misappropriation of Information: Transaction Risks of Information Exchange," *Journal of Management Information Systems* 21(2): 87-108. [An earlier version appeared as: Clemons, Eric K. and Lorin M. Hitt (2003). "Poaching and the Misappropriation of Information: Transaction Risks of Information Exchange," *Proceedings of the 37th Annual Hawaii International Conference on System Sciences*, Honolulu, HI.]
28. Snir, Eli and Lorin M. Hitt (2004). "Vendor Screening in Information Technology Contracting with a Pilot Project," *Journal of Organizational Computing and Electronic Commerce* 14(1): 61-88. [An earlier version of this paper appeared as Snir, Eli and Lorin M. Hitt (1999), "Vendor Screening in IT Contracting with a Pilot Project (extended abstract)," *Proceedings of the 20th Annual International Conference on Information Systems*, Charlotte, N.C.: 324-327. (Runner-up for Best Paper Award).]
29. Snir, Eli and Lorin M. Hitt (2003). "Costly Bidding in Online Markets for IT Services," *Management Science* 49(11): 1504-1520.
30. Brynjolfsson, Erik and Lorin M. Hitt (2003) "Computing Productivity: Firm-Level Evidence," *Review of Economics and Statistics* 85(4): 793-808.
31. Brynjolfsson, Erik, Hitt, Lorin M. and Shinkyu Yang (2002) "Intangible Assets: Computers and Organizational Capital," *Brookings Papers on Economic Activity* (1): 137-199. [An earlier version of this paper appeared as Brynjolfsson, Erik, Hitt, Lorin M. and Shinkyu Yang (1998) "Intangible Assets: How the Interaction of Computers and Organizational Structure Affects Stock Market Valuations", *Proceedings of the 19th Annual International Conference on Information Systems*, Helsinki, Finland: 8-29.]
32. Chen, Pei-Yu and Lorin M. Hitt (2002) "Measuring Switching Costs and Their Determinants in Internet Enabled Businesses: A Study of the Online Brokerage Industry," *Information Systems Research* 13(3): 255-276. [An earlier version of this paper appeared as Chen, Pei-Yu and Lorin M. Hitt (2000) "Switching Cost and Brand Loyalty in Electronic Markets:

- Evidence from On-Line Retail Brokers," *21st Annual International Conference on Information Systems*, Brisbane, Australia: 134-144.]
33. Hitt, Lorin M., Wu, D.J. and Xiaoge Zhou (2002). "Investment in Enterprise Resource Planning: Business Impact and Productivity Measures," *Journal of Management Information Systems* (Special Issue on ERP) 19(1): 71-98.
34. Hitt, Lorin M. and Frances X. Frei (2002). "Do Better Customers Utilize Electronic Distribution Channels? The Case of PC Banking," *Management Science* 48(6, June): 732-749.
35. Clemons, Eric K., Hann, Il-Horn, and Lorin M. Hitt (2002). "Price Dispersion and Differentiation in Online Travel: An Empirical Investigation," *Management Science* 48(4, April): 534-550.
36. Bresnahan, Timothy, Brynjolfsson, Erik and Lorin M. Hitt (2002). "Information Technology, Workplace Organization and the Demand for Skilled Labor: Firm-level Evidence," *Quarterly Journal of Economics*, 117(1): 339-376. [Reprinted as "Technología de la Información, Organización del Lugar de Trabajo y Demanda de Trabajadores Calificados: Evidencia a Partir de Datos de Empresa," Chapter 8 in *Reformas Y Equidad Social En America Latina Y El Caribe* (Carlos Eduardo Velez and Pax Castillo-Ruiz, eds.) Banco Interamericano de Desarrollo: 135-168 (2004). An earlier version of this paper appeared as Bresnahan, Timothy, Brynjolfsson, Erik and Lorin M. Hitt (2000) "Technology, Organization and the Demand for Skilled Labor," Chapter 5 in *The New Relationship: Human Capital in the American Corporation* (Margaret M. Blair and Thomas A. Kochan, eds.), Brookings Institution Press: 145-193.]
37. Clemons, Eric K., Hitt, Lorin M., Gu, Bin, Thatcher, Matt E. and Bruce W. Weber (2002). "Impacts of eCommerce and Enhanced Information Endowments on Financial Services: A Quantitative Analysis of Transparency, Differential Pricing and Disintermediation," *Journal of Financial Services Research* 22(1,2): 73-90.
38. Brynjolfsson, Erik and Lorin M. Hitt (2000). "Beyond Computation: Information Technology, Organizational Transformation and Business Performance." *Journal of Economic Perspectives*, 14(4): 23-48. [Reprinted as Brynjolfsson, Erik and Lorin M. Hitt (2004). "Information Technology, Organizational Transformation and Business Performance," Chapter 2 in *Productivity, Inequality and the Digital Economy* (Nathalie Greenan, Yannick L'Horty and Jacques Mairesse, eds.), MIT Press: 55-91. Also reprinted as Chapter 4 in *Inventing Organizations of the 21st Century* (Thomas Malone, Robert Laubacher and Michael S. Scott Morton, eds): 70-99.]
39. Hitt, Lorin M. (1999). "Information Technology and Firm Boundaries: Evidence from Panel Data," *Information Systems Research*, 10(2, June): 134-149.
40. Brynjolfsson, Erik and Lorin M. Hitt (1998). "Beyond the Productivity Paradox," *Communications of the ACM*, 41(8): 49-55.
41. Hitt, Lorin M. and Erik Brynjolfsson (1997). "Information Technology and Internal Firm Organization: An Exploratory Analysis," *Journal of Management Information Systems* 14 (2): 81-101.
42. Brynjolfsson, Erik and Lorin M. Hitt (1996). "Paradox Lost? Firm-Level Evidence on the Returns to Information Systems," *Management Science* 42 (4): 541-558. [reprinted as Section 1 Chapter 1 in *Beyond the IT Productivity Paradox*, (Leslie Willcocks and Stephanie Lester, eds.), John Wiley and Sons: 39-68 (1999) and Section 2 Chapter 1 in *Exploring Information Systems Research Approaches*, (Robert D. Galliers, M. Lynne Markus and Sue

- Newell, eds.), Routledge: 109-127 (2007). An earlier version of this paper appeared as Brynjolfsson, Erik and Lorin M. Hitt (1993) "Is Information Systems Spending Productive? New Evidence and New Results," *Proceedings of the 14th Annual International Conference on Information Systems*, Orlando, FL. December: 47-64.]. Winner of the Best Paper Award in Information Systems Economics in last seven years (1999 Workshop on Information Systems and Economics).
43. Hitt, Lorin M. and Erik Brynjolfsson (1996). "Productivity, Business Profitability, and Consumer Surplus: Three Different Measures of Information Technology Value," *MIS Quarterly* 20(2): 121-142. Winner of 1996 Best Paper award. [An earlier version of this paper appeared as Hitt, Lorin M. and Erik Brynjolfsson (1994) "The Three Faces of IT Value: Theory and Evidence," *Proceedings of the 15th Annual International Conference on Information Systems*, Vancouver, B.C., December. (Winner of Best Paper and Best Paper Addressing Conference Theme Awards): 263-277.]
 44. Brynjolfsson, Erik and Lorin M. Hitt (1995) "Information Technology as a Factor of Production: The Role of Differences Among Firms", *Economics of Innovation and New Technology* 3-4: 183-199.
 45. Martin, Suzanne, Hitt, Lorin M., and James Rosenberg (1989) "p-Channel Germanium MOSFETs with High Channel Mobility," *IEEE Electron Device Letters* 10(7, July): 325-326.

Refereed Conference Proceedings (Not otherwise published in Journals)

46. Wu, Lynn, Jin, Fujie and Lorin M. Hitt (2015). "How Do Data Skills Affect Firm Productivity: Evidence from Process-driven vs. Innovation-driven Practices," *Proceedings of the 34th Annual International Conference on Information Systems*.
47. Wu, Lynn, Jin, Fujie and Lorin M. Hitt (2015). "Data Skills and the Value of Social Media: Evidence from Large-Sample Firm Value Analysis," *Proceedings of the 34th Annual International Conference on Information Systems*. (Updated version: SSRN 2826115)
48. Hong, Yili, Chen, Pei-Yu, and Lorin M. Hitt (2012). "Measuring Product Type with Dynamics of Online Review Variance: Implications for Research and Practice," *Proceedings of the 31st Annual International Conference on Information Systems* (runner-up best paper award). (Updated version: SSRN 2422686)
49. Tambe, Sonny, Hitt, Lorin M. and Erik Brynjolfsson (2011) "The Price and Quantity of IT-Related Intangible Capital," *Proceedings of the 30th Annual International Conference on Information Systems*.
50. Gao, Gordon and Lorin M. Hitt (2003). "The Economics of Telecommuting: Theory and Evidence," *Proceedings of the 24th Annual International Conference on Information Systems*, Seattle, WA.
51. Chen, Pei-Yu and Lorin M. Hitt (2001) "Brand Awareness and Price Dispersion in Electronic Markets," *22nd Annual International Conference on Information Systems*, New Orleans, LA.
52. Gu, Bin and Lorin M. Hitt (2001) "Transactions Costs and Market Efficiency," *22nd Annual International Conference on Information Systems*, New Orleans, LA.

Other Publications

Chapters in Books

53. Chen, Pei-Yu and Lorin M. Hitt (2007). "Information Technology and Switching Costs," in T. Hendershott, ed., *Handbook of Information Systems Economics*.
54. Brynjolfsson, Erik and Lorin M. Hitt (2005) "Intangible but not Unmeasurable: Some Thoughts on the Measure and Magnitude of Intangible Assets," in Carol Corrado and Daniel Sichel, eds., *Measuring Capital in the New Economy*, University of Chicago Press (for NBER).
55. Brynjolfsson, Erik and Lorin M. Hitt (2005) "Intangible Assets and the Economic Impact of Computers," in William Dutton, Brian Kahin, Ramon O'Callaghan, and Andrew Wyckoff, eds., *Transforming Enterprise*, MIT Press.
56. Clemons, Eric K., Hitt, Lorin M. and David C. Croson (2001) "The Future of Retail Financial Services: Transparency, Bypass and Differential Pricing," Chapter 4 in *Tracking a Transformation: E-commerce and the Terms of Competition in Industries* (J. Zysman, ed.), Brookings Institution Press: 92-111.
57. Clemons, Eric K. and Lorin M. Hitt (2001) "Financial Services: Transparency, Differential Pricing and Disintermediation," Chapter 4 in *The Economic Payoff from the Internet Revolution* (R. Litan and A. Rivlin, eds.), Brookings Institution Press: 87-128.
58. Hitt, Lorin M., Frei, Frances X. and Patrick T. Harker. (1999) "How Financial Firms Decide on Technology," Chapter 3 in *Brookings/Wharton Papers on Financial Services: 1999*, Litan, Robert E. and Anthony M. Santomero, Eds. Washington, DC: Brookings Institution Press: 93-136.
59. Hitt, Lorin M. (1999). "The Impact of IT Management Practices on the Performance of Life Insurance Companies," Chapter 7 in *Changes in the Life Insurance Industry: Efficiency, Technology and Risk Management* (J. David Cummins and Anthony M. Santomero, eds.), Norwell, MA: Kluwer Academic Publishers: 211-243.

Trade Journal Publications

60. Brynjolfsson, Erik and Lorin M. Hitt (1997) "Breaking Boundaries", *InformationWeek* 500 September 22: 54-61.
61. Brynjolfsson, Erik and Lorin M. Hitt (1996) "The Customer Counts," *InformationWeek*, September 8: 38-43.
62. Brynjolfsson, Erik and Lorin M. Hitt (1995) "The Productive Keep Producing," *InformationWeek*, September 18: 38-43.

Books

63. Ferguson, Matthew, Hitt, Lorin and Prasanna Tambe. *The Talent Equation*. McGraw Hill, 2013.

Reports

64. Ahluwalia, Simran, Caulfield, Matthew, Davidson, Leah, Diehl, Mary Margaret, Ipsas, Aline, Windle, Michael and Lorin M. Hitt (2017). *The Business of Voting*. Wharton Public Policy Issue Industry Report. (<https://publicpolicy.wharton.upenn.edu/business-of-voting/>)
65. Hitt, Lorin M. and Prasanna Tambe (2011). Technical Report: The Business Case for Healthcare Information Technology in Nursing Homes. White Paper (SSRN 1964841)

66. Beard, Nick, Elo, Kinga Z., Hitt, Lorin M. and Michael G. Housman (2007). The Economics of IT and Hospital Performance. Pricewaterhouse Coopers White Paper (http://www.pwc.com/us/en/technology-innovation-center/assets/healthindex_web-x.pdf)
67. Hitt, Lorin, Wu, Lynn, Campbell, Karen, Jeafarqomi, Karim, Ashtiani, Hamid and Leslie Levesque. "Corporate Data Literacy: Scoring Firms and Firm Performance," IHS Market White Paper, September 2018.

Working Papers

68. Yapar, Ozge, Lobel, Ruben and Lorin M. Hitt (2017). "Technology Sharing in Two Sided Markets." Working Paper.
69. Jin, Fujie, Wu, Andy and Lorin Hitt (2017). "Social is the New Financial: How Startup Social Media Activity Influences Funding Outcomes," Mack Center Working Paper, Wharton School (https://mackinstitute.wharton.upenn.edu/wp-content/uploads/2017/03/FP0331_WP_Feb2017.pdf)
70. Brynjolfsson, Erik, Hitt, Lorin M. and Heekyung Hellen Kim (2011). "Strength in Numbers: how Does Data-Driven Decisionmaking Affect Firm Performance?" Working Paper (SSRN 1919486)
71. Brynjolfsson, Erik, Hitt, Lorin M., Rock, Daniel and Prasanna Tambe (2019). "IT, AI and the Growth of Intangible Capital," Working Paper (SSRN 3416289).

Academic Honors

Management Science, Information Systems Best Paper Award Finalist (2014, 2015, winner 2016)
 Information Systems Research: Best Paper Award (2013)
 Wharton Excellence in Teaching Award, Undergraduate Division (1998, 1999, 2000, 2001, 2003, 2007, 2008, 2012, 2013, 2018)
 Best Paper in Information Systems and Economics (last 7 years), Workshop on Information Systems and Economics (1999)
 Runner-up for Best Paper, International Conference on Information Systems (1999, 2004, 2012)
 David Hauck Award for Distinguished Teaching, Wharton School (1999)
 Christian R. and Mary F. Lindback Award for Distinguished Teaching, University of Pennsylvania (1998)
 National Science Foundation CAREER Program Grant Recipient (1998)
 Best Paper Award, Management Information Systems Quarterly (1996)
 International Conference on Information Systems Doctoral Consortium (1995)
 MIT Industrial Performance Center Doctoral Dissertation Fellowship (1995)
 "Best Paper" and "Best Paper Addressing the Conference Theme" Awards at the International Conference on Information Systems (1994)
 DuWayne J. Petersen Fellowship (1992-1996)
 Honorable Mention, National Science Foundation Fellowship (1989)
 Elected to Tau Beta Pi Engineering Society (1988)
 Elected to Sigma Xi Scientific Research Society (1988)
 Finalist, National Merit Scholarship Program (1985)
 National Society of Professional Engineers' Scholarship (1985)
 Honorable Mention, Westinghouse Science Talent Search (1985)

Grants

Commonwealth Fund. The Business Case for Healthcare IT in Nursing Homes. (~\$150K) (1/08 – 12/13).

Co-Principal Investigator (with Mei Xue and Patrick Harker), National Science Foundation. Collaborative Research: Customer Efficiency and the Management of Multi-Channel Service Delivery Systems. Award: ~\$250K (8/05 – 8/07)

Wharton eBusiness Initiative/Mack Center, University of Pennsylvania, Wharton School. Product Reviews, Pricing and Market Strategy. Award: \$10K (5/05-11/05)

Fishman Davidson Center, University of Pennsylvania, Wharton School. Information Technology, Product Variety and Operations (6/2004-6/2005). Award: ~\$18K.

University Research Foundation. Information Technology and Product Variety; Data Development and Analysis. Award: \$18.5K (9/2004-5/2005)

Co-Principal Investigator (with Paul Kleindorfer and D.J. Wu), SAP America. Valuation of ERP in the Oil and Gas Industry. Award: \$40K (10/02-6/03)

Principal Investigator, NSF Grant IRI-9733877 (Computing and Social Systems Program): The Economics of Information Technology, Organization and Productivity: Theory Development and Empirical Investigation. Award: \$309K (6/98-10/04)

Principal Investigator. Customer Behavior in On-Line Markets. Wharton Electronic Commerce Forum. Award: \$25K (6/00 – 6/01).

Principal Investigator. Switching Cost and Pricing in Electronic Markets. Wharton eBusiness Initiative. Award \$25K (6/01-6/02)

Journal/Conference Reviews

Editorial Board

Information Systems Research (Guest Senior Editor, 2009-2011; Senior Editor, 2007-2008; Associate Editor 2000-2002, 2004 Guest Associate Editor)
Journal of Management Information Systems (2002-present)
Management Science (2002-2008; Departmental Co-Editor – Information Systems, 2008-2015)
SSRN Information Systems and Economics (2004-2008)

Program Committee

Workshop on Information Systems and Economics (2009 Conference Co-Chair; 2004, Conference Co-Chair)
International Conference on Information Systems (2000, 2003 Associate Editor)
ACM Conference on Electronic Commerce (2007)
International Conference on Information Systems Doctoral Consortium (2007)
NYU CeDER Summer Doctoral Workshop (2007)

Ad-hoc Reviewer

American Economic Review, Canadian Journal of Economics, Canada Social Science Research and Humanities Council, City University of Hong Kong - Grant Review Committee, Communications of the ACM, Economic Inquiry, European Economic Review, European Journal of Operations Research, Hawaii International Conference on System Sciences
Industrial Relations, Industrial and Labor Relations Review, Information Economics and Policy, Information Systems Frontiers, Information Systems Research, Information Technology and

Management, Journal of Banking and Finance, Journal of Industrial Economics, Journal of Law, Economics and Organization, Journal of Management Information Systems, Journal of Organizational Computing, Journal of Productivity Analysis, Management Science, Managerial and Decision Economics, Manufacturing & Service Operations Management, Marketing Science, McGraw-Hill Textbook Division, MIS Quarterly (occasional Guest Associate Editor), National Science Foundation, Review of Economics and Statistics, Regional Science, Sloan Management Review, Quarterly Journal of Economics

Teaching Experience

Massachusetts Institute of Technology, Sloan School of Management. Course: 15.567 – Introduction to eBusiness, Fall, 2001 (2 sections, co-taught with Erik Brynjolfsson)

University of Pennsylvania, The Wharton School. Course: OPIM101 – Introduction to Operations and Information Management. Fall, 2007; Fall, 2008; Fall, 2009; Fall, 2010; Fall, 2011 (Co-instructor); Fall, 2012; Fall, 2013 (x2); Fall, 2014 (x2) ; Fall, 2015 (x2) (Instructor).

University of Pennsylvania, The Wharton School. Course: OPIM105 -- Data Analysis in VBA and SQL. Spring, 2011 (Co-instructor); Spring, 2012; Spring, 2013; Fall, 2013; Fall 2015; Fall 2016 x2; Fall 2017 x2; Fall 2018 x2, Fall 2019 x2.

University of Pennsylvania, The Wharton School. Course: OPIM 469 - Advanced Topics in Information Strategy and Economics. Spring, 2000 (x2); Spring, 2001 (x2); Spring, 2002 (x3) (Instructor); Spring, 2003 (Co-instructor, 2 sections); Spring, 2004; Spring, 2005; Spring, 2006; Spring, 2007; Fall, 2008; Spring, 2010; Spring, 2011; Spring, 2012; Spring, 2013, Fall 2014 (Instructor)

University of Pennsylvania, The Wharton School. OPIM669 - Advanced Topics in Information Strategy/Financial Information Systems. Spring, 1998; Spring, 1999; Spring, 2000; Spring, 2001; Spring, 2002 (Guest Lecturer); Spring, 2003 (Co-instructor); Spring, 2004; Spring, 2005; Spring, 2006; Spring, 2007 (Instructor).

University of Pennsylvania, The Wharton School. Tiger Team Field Application Project. Spring, 1999; Spring, 2000; Spring, 2001 (Faculty Advisor for Electronic Commerce/IT projects)

University of Pennsylvania, The Wharton School. Course: EMTM900 – Electronic Commerce Marketing. Spring, 2000 (Guest Lecturer)

University of Pennsylvania, The Wharton School. Course: D-SEM on Electronic Commerce. Fall, 2000

University of Pennsylvania, The Wharton School. Course: OPIM 319 - Advanced Topics in Information Strategy/Advanced Decision Support Systems (now OPIM469). Spring, 1998; Spring, 1999 (Instructor)

University of Pennsylvania, The Wharton School. Course: OPIM 210 - Management Information Systems. Fall, 1996; Spring, 1997; Fall, 1997; Spring, 1998; Spring 1999 (x2); Fall, 2002 (x2); Spring, 2004; Spring, 2006; Fall, 2006; Spring, 2007; Fall, 2007 (Instructor).

University of Pennsylvania, The Wharton School. MBA Pre-Term Exercise on Contract Negotiations for Information Technology Outsourcing. Fall, 1998; Fall, 1999 (with D. Croson and R. Croson)

University of Pennsylvania, The Wharton School. Course: OPIM 950/955/960/961 - Doctoral Seminar in Information Technology: Economics and Organization. Fall, 1997; Fall, 2000 w/ R. Aron as OPIM899; Fall, 2001 (Guest Lecturer); Fall, 2003 (Guest Lecturer); Spring, 2003; Fall, 2004 (Guest Lecturer); Spring, 2005; Spring, 2008; Spring, 2010; Spring, 2012; Spring 2013 (co-Instructor); Spring, 2015; Spring 2016; Spring 2017; Spring 2018; Spring 2019.

University of Pennsylvania, The Wharton School. Course: WH101 – Business and You. Spring, 2017, Fall 2017, Fall 2018, Fall 2019. (cotaught OIDD Session).

University of Pennsylvania, The Wharton School. Course: OPIM 666 - Information: Industry Structure and Competitive Strategy. Winter Quarter, 1997; Spring Quarter, 1997 (Instructor); Guest Lecturer (Fall Quarter, 1999; Fall Quarter, 2000).

Massachusetts Institute of Technology, Sloan School of Management. Course: 15.566 - Information Technology as an Integrating Force in Manufacturing. Spring, 1995 (Teaching Assistant)

Brown University, Department of Engineering. Course: EN 162- Analog Circuit Design. Spring, 1987 (Teaching Assistant)

Professional Affiliations

Sigma Xi, Tau Beta Pi, Association for Computing Machinery, American Economic Association, INFORMS, Association for Information Systems

Students Supervised

Dissertation Supervisor

Eli Snir (2001): Lecturer, Washington University
Pei-Yu (Sharon) Chen (2002): Professor, Arizona State University
Guodong (Gordon) Gao (2005): Associate Professor, University of Maryland
Xinxin (Mandy) Li (2005): Associate Professor, University of Connecticut
Prasanna (Sonny) Tambe (2008): Associate Professor, Wharton School
Fujie Jin (2016): Assistant Professor, Indiana University

Thesis Reader

Bin Gu (2002): Professor, Arizona State University
Il-Horn Hann (2000): Professor, University of Maryland
Michael Jacobides (2000): Professor, London Business School
Jeff McCullough (2005): Assistant Professor, University of Minnesota
Ying Liu (2006): Assistant Professor, University of Hawaii
Ben Powell (2003): Unknown
Michael Row (2001): Private Industry
Baba Prasad (2003): Unknown
Mei Xue (2001): Associate Professor, Boston College
Matt Thatcher (1999): Assistant Professor, University of Nevada (Las Vegas)
Shinyi Wu (2003): Assistant Professor, Arizona State University

Moti Levi (2001): Private Industry
Antonio (Toni) Moreno-Garcia (2012): Assistant Professor, Northwestern University
Sergeui Roumanitsev (2006): Private Industry
Marcelo Olivares (2007): Associate Professor, Columbia University
Ben Shiller (2011): Assistant Professor, Brandeis University
Adam Saunders (2011): Assistant Professor, University of British Columbia
Fangyun (Tom) Tan (2011): Assistant Professor, Southern Methodist University
Vibahshu Abhishek (2011): Assistant Professor, Carnegie Mellon University
Hessam Bavafa (2013): Assistant Professor, University of Wisconsin
Yili (Kevin) Hong (2013): Assistant Professor, Arizona State University
Dokyun Lee (2014): Assistant Professor, Carnegie Mellon University
Jing Peng (2015): Assistant Professor, University of Connecticut

Other Doctoral Advising

Fujie Jin (2013): Summer Paper Advisor, Primary Academic Advisor
Amanda Jensen (2010): Summer Paper Advisor
Felipe Csaszar (2005): Academic Advisor
Ozge Yasar (2015-6): Independent study supervisor
Kayoung Choi (2015): Summer Paper Advisor
Etiye Cansu Erol (2019): Summer Paper Advisor

Masters Students

Xiaoge Zhou, OPIM Department, Wharton School (1999-2001): Thesis Supervisor
Jihae Wee, School of Engineering and Applied Science (2003): Project Supervisor
Zhu Lu, College of Arts and Sciences (2014): Thesis Supervisor

MBA Students

Anna Blacyzyck, Wharton School (2004): Independent Study Project Supervisor
Luca Coltro, Wharton School (1997-1998): Advanced Study Project Supervisor
Andrew Trader, Wharton School (1999): Advanced Study Project Supervisor

Undergraduate Students

Steven Altman, Wharton School (1997): Independent Study Project Supervisor
Maury Apple, Wharton School (1997): Independent Study Project Supervisor
Tara Bhandari, Wharton School (2002): Society Project Supervisor
Thomas Burrell, Engineering School (2001): Senior Project Supervisor
Todd Bishop, Wharton School (1999): Independent Study Project Supervisor
Rachel Boim, Wharton School (1999): Independent Study Project Supervisor
Hope Bromley, Wharton School (2000): Independent Study Project Supervisor
John Chiang, Wharton School (2001): Society Project Supervisor
Charlene Chen, Wharton School (2005): Senior Design Project Supervisor
Robert Dolan, Wharton School (2003-4): Wharton Research Scholars Supervisor
Ronak Ghandhi, School of Engineering (2013): Senior Design Project Supervisor
Gabriel Gottlieb, School of Engineering (2002): Senior Design Project Supervisor
Phuong Ho, Department of Economics (1998): Honors Advisor
Richard Hooper, Systems Engineering (1999): Independent Study Project Advisor
Hunter Horsley, Wharton School (2015): Independent Study Project Advisor
Melinda Hu, Wharton School (2018-2019): Wharton Research Scholars Advisor
Pawel Hytry, Wharton School (2011-2012): Independent Study Project Advisor
Ulhas Jagdale, School of Engineering (2013): Senior Design Project Supervisor
Johnny Kong, Wharton School (2005): Senior Design Project Supervisor

Amin Laksmani, Computer Science and Engineering (2010): Senior Design Supervisor
Henrique Laurino, Wharton School (2018): Senior Thesis Supervisor
Jacob Lefkowitz, Wharton School (1998): Society Project Supervisor
Steven Levick, Wharton School (2012): Independent Study Supervisor
Brandon Newberg, Wharton School (2012): Independent Study Supervisor
David Perez y Perez, Wharton School (1999): Independent Study Supervisor
Nickhil Ramchandi, Wharton School (1999): Independent Study Supervisor
Reuben Randolph, School of Engineering (1998): Project Supervisor
Kevin Reeves, School of Engineering (2001): Independent Study Project Supervisor
Allison Rosen, Wharton School (1997): Independent Study Project Supervisor
Jennifer Seo, School of Engineering (2000): Senior Design Project Supervisor
Kyle Smith, Wharton School (2001): Independent Study Project Supervisor
David Thornton, Wharton School (2005): Senior Design Project Supervisor
Jon Turow, Wharton School (2005-6): Independent Study Supervisor
Udack Victor, School of Engineering (2000): Senior Design Project Supervisor
Jason Wang, Wharton School (1998): Society Project Supervisor
Melinda Wang, Wharton School (2018): Senior Project Supervisor
Christine Wong, Wharton School (1997): Society Project Supervisor

Other Service

University of Pennsylvania

Academic Dishonesty Disciplinary Committee Panel (2012)
Trustees Committee on Academic Policy (2009-2010)
Lindback Teaching Award Committee (1999)

Wharton School

Curriculum Innovation and Review Committee (CIRC) (chair, 2016-9)
Undergraduate Curriculum Evaluation Committee (2014-2016)
Management Department Q-Review Committee, Chair (2013-2014)
Wharton Personnel Committee (2009-2011)
Dean's Advisory Group (2008)
Panel Moderator, Wharton Asia Business Forum (2006)
Undergraduate Curriculum Design Committee (2003)
Ph.D Program Review Committee (2000)
Dean's Council on Education (2001)
WebI Curriculum Development Committee (2000)

Wharton School, Undergraduate Division

Moderator, Wharton Information Technology Career Panel (1997-99)
Graduation Speaker (1999)
Parents Weekend Speaker (1999)
Hauck Teaching Award Committee (2000-01)
Electronic Commerce Concentration Advisor (2000-present)
Wharton/Monitor Corporation Undergraduate Case Competition Judge (2001)
Deans Award for Excellence Committee (2010, 2006)

Wharton School, Department of Operations and Information Management/OIDD

Recruiting Committee (2005, 2006, 2011, 2014, 2016)
Doctoral Admissions Committee (2004, 2005, 2011, 2012-13, 2015-7)
Department Q-Review Committee (1999-00)
Undergraduate Coordinator (1998-01, 2002-2008)
Undergraduate Curriculum Committee (1998-01, 2002-2008)
Department Computing Coordinator (1997)

Department Representative to Wharton Computing (1997)

Department Seminar Coordinator (1996, 2010)

Departmental Tenure Committees (2006, 2013, 2014, 2019)

Wharton School, Public Policy Initiative

Wharton/OSET Foundation Project on the Voting Technology Industry (2016)

Morgan State University

Advising on Curriculum Design (2019).

MIT Center for Coordination Science

Seminar Coordinator (1994)

National Science Foundation

Panelist (1998, 2001, 2003, 2005, 2006, 2015)

Participant in the NSF CISE/SBE Cyberinfrastructure Workshop (2005)

International Conference on Information Systems

Doctoral Consortium Faculty (2006)

Other

MIT Inclusive Innovation Competition Judge (2016)

NYU/CeDER Summer Doctoral Consortium Faculty (2006)

Appendix 2

Prior Testimony At Trial, Arbitration or Deposition in the Last Four Years

Wisconsin Alumni Research Foundation v. Apple Inc. United States District Court for the Western District of Wisconsin, Case No: 14cv62.

California Institute of Technology v. Hughes Communications Inc., Hughes Network Systems LLC, Dish Network Corporation, Dish Network LLC, DishNet Satellite Broadband LLC., United States District Court Central District of California, Case No: 2:13-cv-07245-MRP-JEM.

GO Computer Inc. and S. Jerrold Kaplan v. Microsoft Corporation, Superior Court of the State of California City and County of San Francisco, Case No: CGC-05-442684.

In Re: Shop-Vac Sales and Marketing Litigation (class action). United States District Court for the Middle District of Pennsylvania, Civil Action No. 4:12-md-02380.

Anthony Shamrell et al. v. Apple Inc., Superior Court of the State of California County of San Diego, Case No: 37-2013-00055830-CU-PL-CTL.

William S. Callaway et. al. v. Mercedes-Benz USA, LLC. United States District Court for the Central District of California, Case No. 8:14-cv-02011-JVS (DFMx).

Prosys Consultants, Ltd and Neil Godfrey v. Microsoft Corporation and Microsoft Canada Co./Microsoft Canada CIE. Supreme Court of British Columbia, Vancouver Registry No. L043175.

AVM Technologies, LLC v. Intel Corporation. United States District Court for the District of Delaware, Case No. 15-33-RGA.

Realtime Data LLC d/b/a IXO v. Oracle America, Inc. United States District Court for the Eastern District of Texas, Case No. 6:16-cv-000880RWS-JDL and 6:15-cv-00467-RWS-JDL.

Marc Opperman et. al. v. Path, Inc. et. al. United States District Court for the Northern District of California, Case No. 13-cv-0453-JST.

Realtime Data LLC v. Rackspace US, Inc., NetApp, Inc., and SolidFire LLC, United States District Court for the Eastern District of Texas, Case No. 6-16-cv-00961.

Carl Zeiss AG and ASML Netherlands B.V. v. Nikon Corporation, Sendai Nikon Corporation, and Nikon, Inc., United States District Court for the Central District of California Case No. 2:17-cv-03221-RGK (MRWx).

Buckeye Tree Lodge and Sequoia Village Inn, LLC, and 2020 O Street Corporation, Inc. D/B/A The Mansion on O Street v. Expedia, Inc., Hotels.com, L.P., Orbitz, LLC, Venere Net S.R.L. DBA Venere Net, LLC and Expedia Australia Investments PTY LTD. (class action). United States District Court for the Northern District of California, Case No. 3:16-CV-04721-VC.

Sladjana Perisic on behalf of herself and others similarly situated vs. Ashley Furniture Industries, Inc. United States District Court, Middle District of Florida. Case No. 8:16-CV-03255.

Juan Alvarez and Silvia Rico vs. Ashley Furniture Industries, Inc. and Ashley Homestores Ltd., United States District Court, Central District of California, Western Division. Case No. 2:16-CV-00360 MWF (MRWx)

California Opt Out Arbitrations in VW Diesel Emissions Litigation.

Michelle L. Pennings v. Drew Ford dba Drew Volkswagen.

Laura A. Frerking and Roberts J. Frerking v. Diritto Brothers Walnut Creek, Inc. Caleb A. Lugliani v. Diritto Brothers Walnut Creek, Inc.

Michael J. Taylor and Vicky M. Taylor v. Circle Motors, Inc. dba South Bay Volkswagen
Taner Pamuk & Sarah D. Hartmann v. M&M Automotive Group, Inc. dba Volkswagen of Oakland.

Ian J. and Penny L. Bernard v. Community Auto Group, Inc. dba BMW Santa Maria.

Katrina M. Manos v. J.C.H Investments, dba Murietta Volkswagen

Timothy Hassett v. Q&S Automotive LLC, dba Audi Oakland

Michael T. Ina and Vickie S. Ina v. Porsche Cars North America, Inc. and Sonnen Motorcars, LLC

Steve Duke v. Central Valley Automotive, dba Central Valley Volkswagen

Evan Lippincott & Emily Lippincott v. PAG Santa Ana AVW, Inc. dba Audi South Coast

David L. Felix and Luis M. Felix v. Volkswagen Group of America and Union Volkswagen.
Superior Court of New Jersey: Union County Division, Case No. UNN-L-0053-16.

The California Institute of Technology v. Broadcom Limited, Broadcom Corporation, Avago Technologies Limited, Apple, Inc. and Cypress Semiconductor Corporation. United States District Court for the Central District of California, Case No. 2:16-cv-3714-GW (AGRx).

Riley Johannesson, et al., v. Polaris Industries Inc. (class action), United States District Court District of Minnesota, Case No. 0:16-cv-03348-PJS-LIB.

Route1 Inc. v. Airwatch LLC., United States District Court for the District of Delaware, Case No. 17-331-KAJ.

Jennifer Reitman, et al., v. Champion Petfoods USA, Inc. and Champion Petfoods LP (class action). United States District Court, Central District of California Western Division, Case No. 2:18-cv-01736-DOC-JPR.

*HedgeServ Limited v. Sungard Systems International Inc., n/k/a FIS Systems International, Inc.
d/b/a FIS Front Arena.* United States District Court, Southern District of New York, Case No.
1:16-cv-05617-LGS.

*Dolby Laboratories Licensing Corporation and Dolby Corporation AB v. Adobe Systems
Incorporated.* United States District Court for the Northern District of California, Oakland
Division, Case No. 3:18-cv-01553-YGR.

Appendix 3

Materials Relied Upon by Lorin M. Hitt

Pleadings

Third Amended Class Action Complaint, *Scott Weaver, individually and on behalf of all others similarly situated v. Champion Petfoods USA, Inc. and Champion Petfoods LP*, July 22, 2019

Memorandum of Points and Authorities in Support of Plaintiff's Motion for Class Certification, *Scott Weaver, individually and on behalf of all others similarly situated v. Champion Petfoods USA, Inc. and Champion Petfoods LP*, August 15, 2019

Expert Reports

Supplemental Declaration of Colin B. Weir, with supporting materials, June 20, 2019

Declaration of Colin B. Weir, with supporting materials, August 13, 2019

Expert Report of Dr. Jon A. Krosnick, with accompanying Technical Reports, and with supporting materials, August 13, 2019

Rebuttal Expert Report of Dominique M. Hanssens, September 12, 2019

Deposition Transcripts

Deposition of Colin B. Weir, April 26, 2019

Deposition of Jon A. Krosnick, May 8, 2019

Deposition of Dr. Jon A. Krosnick, August 27, 2019

Academic Literature / Books

Allen, Mark A., Robert E. Hall, and Victoria A. Lazear, "Reference Guide on Estimation of Economic Damages," in *Reference Manual on Scientific Evidence*, 3rd ed. (Washington, DC: The National Academies Press, 2011)

Allenby, Greg, Jeff Brazell, John Howell, and Peter Rossi, "Using Conjoint Analysis to Determine the Market Value of Product Features," in *Proceedings of the Sawtooth Software Conference*, October 2013

Allenby, Greg M., Jeff D. Brazell, John R. Howell, and Peter E. Rossi, "Economic Valuation of Product Features," *Quantitative Marketing and Economics* 12, no. 4 (December 2014): 421–456

Anderson, Simon P., André De Palma, and Jacques-François Thisse, "Demand for Differentiated Products, Discrete Choice Models, and the Characteristics Approach," *Review of Economic Studies* 56, no. 1 (1989): 21–35

Araña, Jorge E., and Carmelo J. León, "Can Defaults Save the Climate? Evidence from a Field Experiment on Carbon Offsetting Programs," *Environmental and Resource Economics* 54, no. 4 (April 2013): 613–626

Banerjee, Onil, et al., "Estimating Benefits of Investing in Resilience of Coastal Infrastructure in Small Island Developing States: An Application to Barbados," *Marine Policy* 90 (April 2018): 78–87

Baye, Michael R., et al., "Information, Search, and Price Dispersion," in *Handbook on Economic and Information Systems*, T. Hendershott, ed. (Elsevier, 2006)

Bell, David R., Ganesh Iyer, and V. Padmanabhan, "Price Competition under Stockpiling and Flexible Consumption," *Journal of Marketing Research* 39, no. 3 (August 2002): 292–303

Berry, Steven, James Levinsohn, and Ariel Pakes, "Automobile Prices in Market Equilibrium," *Econometrica* 63, no. 4 (July 1995): 841–890

Berry, Steven T., "Estimating Discrete-Choice Models of Product Differentiation," *RAND Journal of Economics* 25, no. 2 (Summer 1994): 242–262

Birhane, Meseret G., et. al, "Willingness to Pay for Dog Rabies Vaccine and Registration in Ilocos Norte, Philippines (2012)," *PLoS Neglected Tropical Diseases* 10, no. 3 (March 21, 2016)

Bishop, Richard C., et. al, "Putting a Value on Injuries to Natural Assets: The BP Oil Spill," *Science* 356, no. 6335 (April 21, 2017): 253–254

Brynjolfsson, Erik, and Michael D. Smith, "Frictionless Commerce? A Comparison of Internet and Conventional Retailers," *Management Science* 46, no. 4 (2000): 563–585

Chen, Pei-yu, and Lorin M. Hitt, "Information Technology and Switching Costs," in *Handbook on Economic and Information Systems*, Terrence Hendershott, ed. (Elsevier, 2006)

Diamond, Shari Seidman, and Jerre B. Swann, eds., *Trademark and Deceptive Advertising Surveys: Law, Science, and Design* (Chicago: ABA Publishing, 2012)

Dinlersoz, Emin M., and Han Li, "The Shipping Strategies of Internet Retailers: Evidence from Internet Book Retailing," *Quantitative Marketing and Economics* 4, no. 4 (2006): 407–438

Goolsbee, Austan, Steven Levitt, and Chad Syverson, "Chapter 2: Supply and Demand" in *Microeconomics*, 2nd ed. (New York: Worth Publishers, 2016)

Gordon, R., *The Measurement of Durable Goods Prices*, National Bureau of Economic Research (Chicago: University of Chicago Press, 1990)

Green, Paul E., and Vithala R. Rao, "Conjoint Analysis for Quantifying Judgmental Data," *Journal of Marketing Research* 8, no. 3 (August 1971): 355–363

Griliches, Zvi, "Hedonic Price Indexes and the Measurement of Capital and Productivity: Some Historical Reflections," *Fifty Years of Economic Measurement: The Jubilee of the Conference on Research in Income and Wealth, National Bureau of Economic Research Studies in Income and Wealth*, Vol. 54, pp. 185–206 (Chicago: University of Chicago Press, 1990)

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- "Acana Heritage Red Meat Formula," <https://acana.com/usa/our-foods/dog-foods/for-dogs/red-meat/>
- "Acana Regionals Meadowland," <https://acana.com/usa/our-foods/dog-foods/regionals/meadowland/>
- "Acana Regionals Wild Atlantic," <https://acana.com/usa/our-foods/dog-foods/regionals/wild-atlantic/>
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- Amazon.com
- Bernalbeast.com
- "Bisphenol A (BPA) Factsheet," Centers for Disease Control and Prevention, https://www.cdc.gov/biomonitoring/BisphenolA_FactSheet.html
- Chuckanddons.com
- Ebay.com
- Express.google.com
- <https://www.dogfoodadvisor.com/dog-food-reviews/dry/all/>
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VIC.Pharmacy

Yowpets.com

Bates-stamped Documents

CPF0017614.xlsx

CPF0017743.xlsx

CPF0254952.pptx

CPF0145434-538

CPF1337209-10

CPF1762620-21

CPF1792210-11

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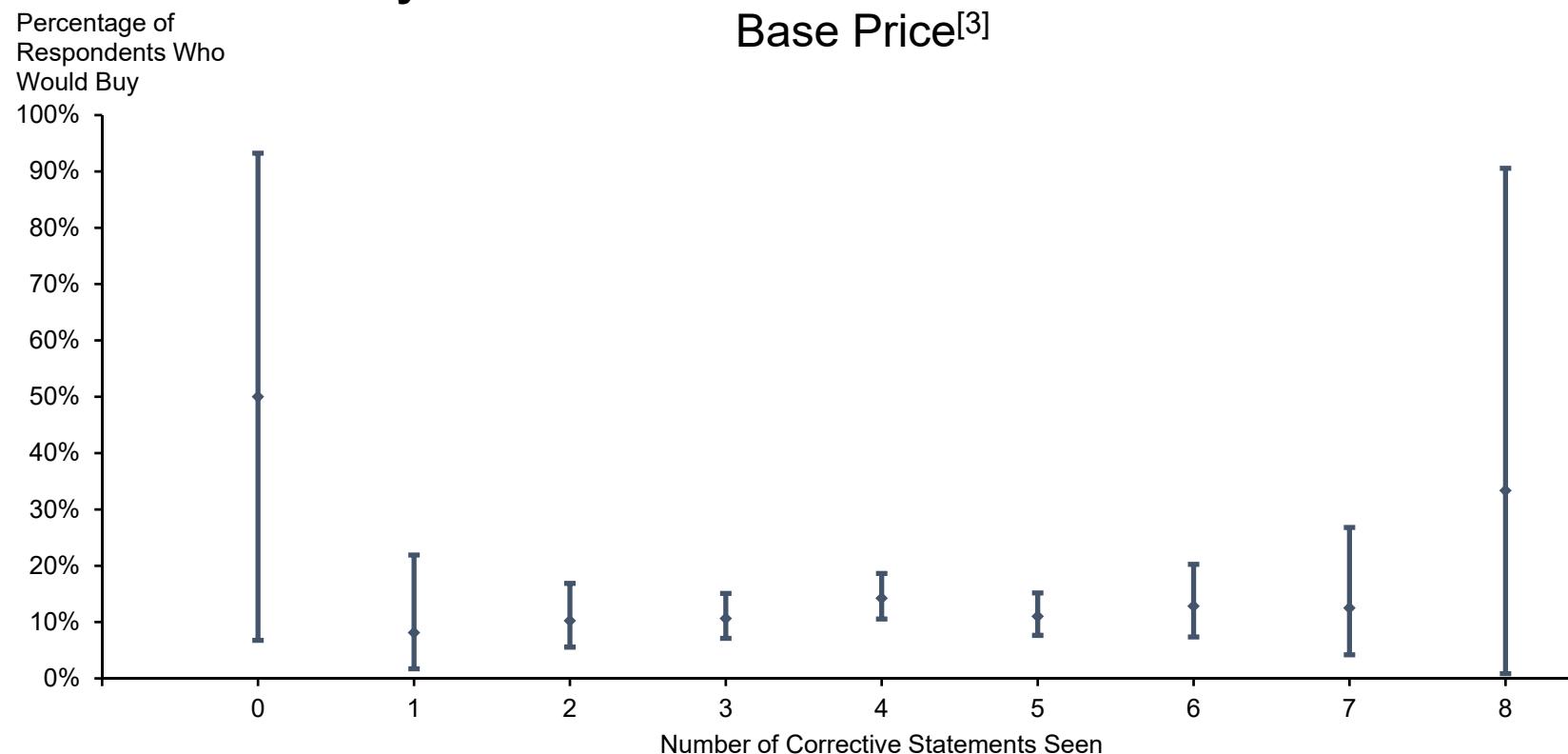
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CPF1792232-33

CPF2118814-19

Appendix 4

Exhibit 1
Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded. The chart shows the aggregate results for the two surveyed products: Orijen Six Fish and Acana Duck and Pear Singles.

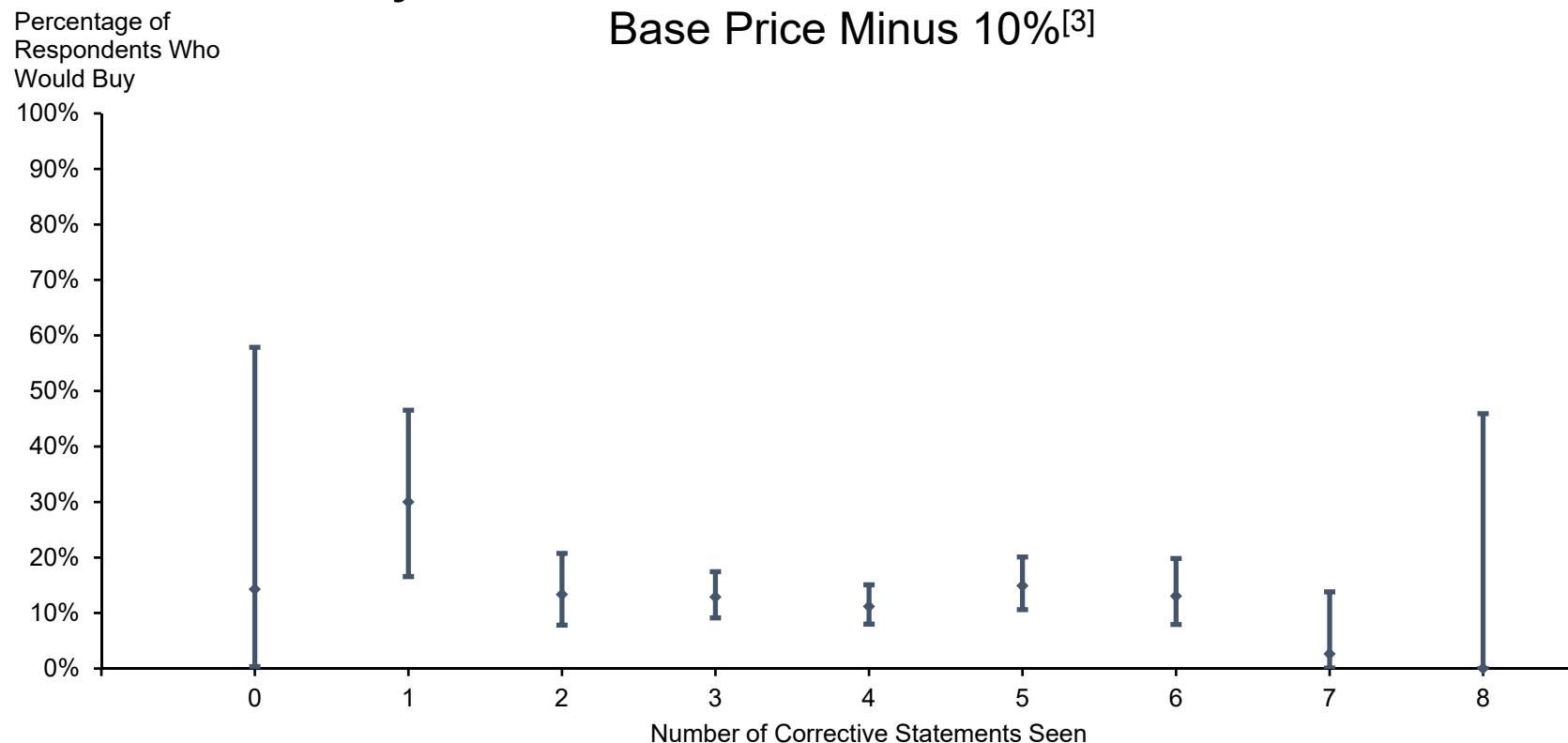
[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 2

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}

Base Price Minus 10%^[3]



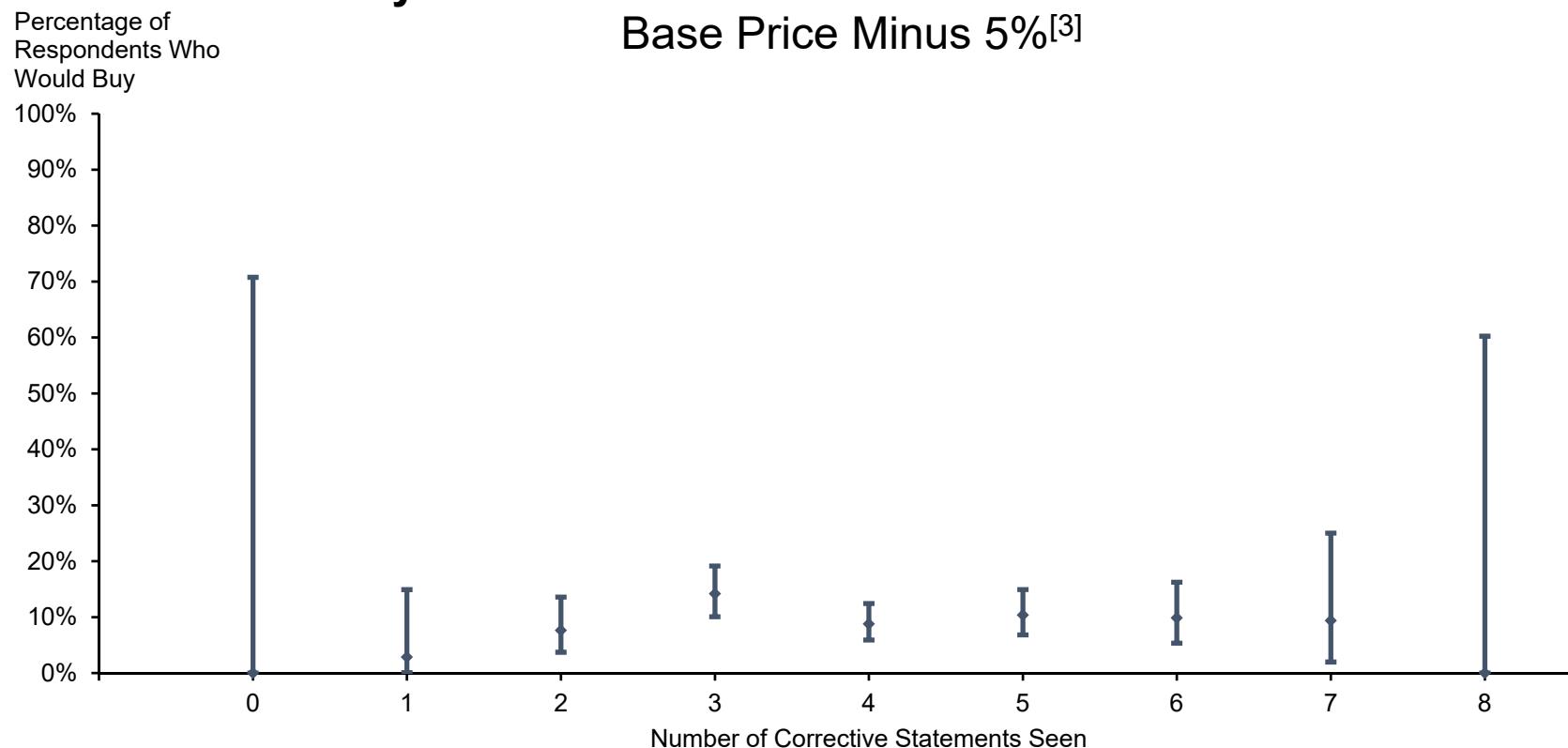
Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

- [1] Observations with empty values for willingness to buy are excluded. The chart shows the aggregate results for the two surveyed products: Orijen Six Fish and Acana Duck and Pear Singles.
- [2] The confidence interval shown is the 95% Clopper-Pearson interval.
- [3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 3

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}

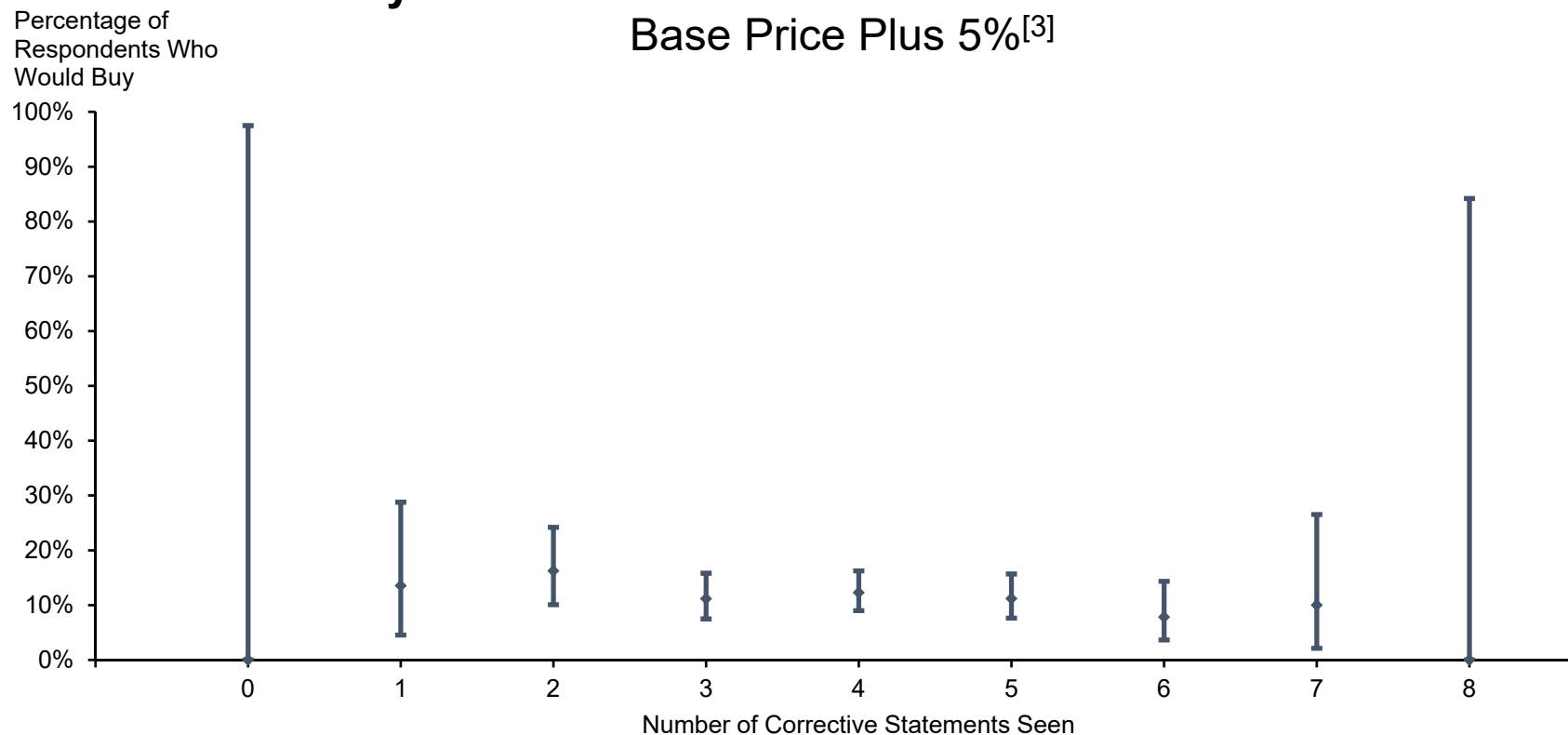


Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

- [1] Observations with empty values for willingness to buy are excluded. The chart shows the aggregate results for the two surveyed products: Orijen Six Fish and Acana Duck and Pear Singles.
- [2] The confidence interval shown is the 95% Clopper-Pearson interval.
- [3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 4
Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}
Base Price Plus 5%^[3]



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

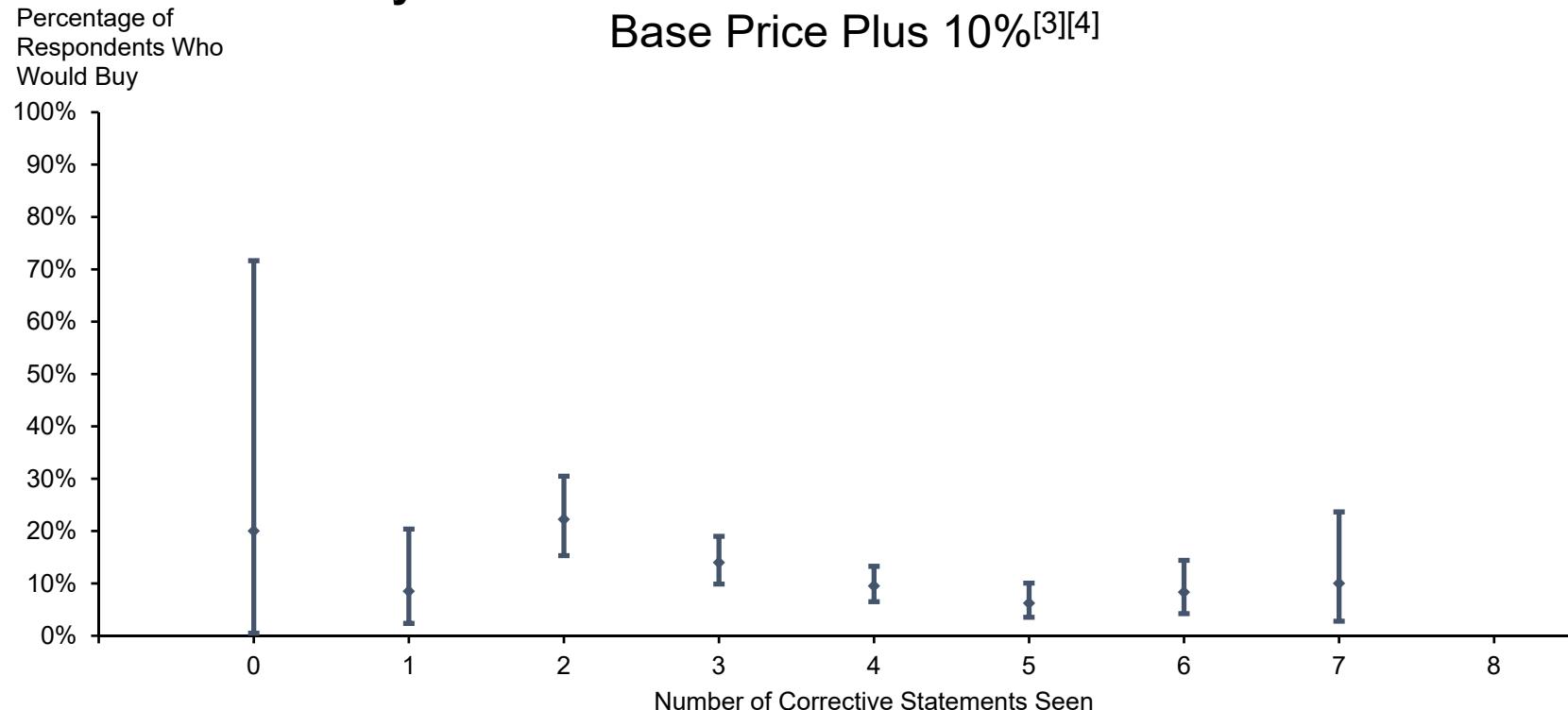
[1] Observations with empty values for willingness to buy are excluded. The chart shows the aggregate results for the two surveyed products: Orijen Six Fish and Acana Duck and Pear Singles.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 5

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded. The chart shows the aggregate results for the two surveyed products: Orijen Six Fish and Acana Duck and Pear Singles.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49 and the Base Price for the Acana Duck and Pear Singles product was \$41.99.

[4] No respondents were shown Base Price Plus 10% and saw eight Corrective Statements.

Exhibit 6
Percentage of Survey Respondents That Are Willing to Buy
by Price and Number of Corrective Statements Seen^[1]
Orijen Six Fish Respondents Only

Price ^[2]	Number of Corrective Statements Seen								
	0	1	2	3	4	5	6	7	8
Base Price Minus 10%	0%	29%	15%	12%	8%	16%	8%	0%	0%
Base Price Minus 5%	0%	6%	5%	13%	6%	10%	6%	8%	0%
Base Price	50%	16%	9%	10%	12%	11%	10%	25%	50%
Base Price Plus 5%	0%	6%	13%	12%	13%	11%	8%	8%	0%
Base Price Plus 10%	-	6%	18%	20%	11%	6%	8%	5%	-
Total Number of Respondents	10	93	315	621	799	641	328	83	10

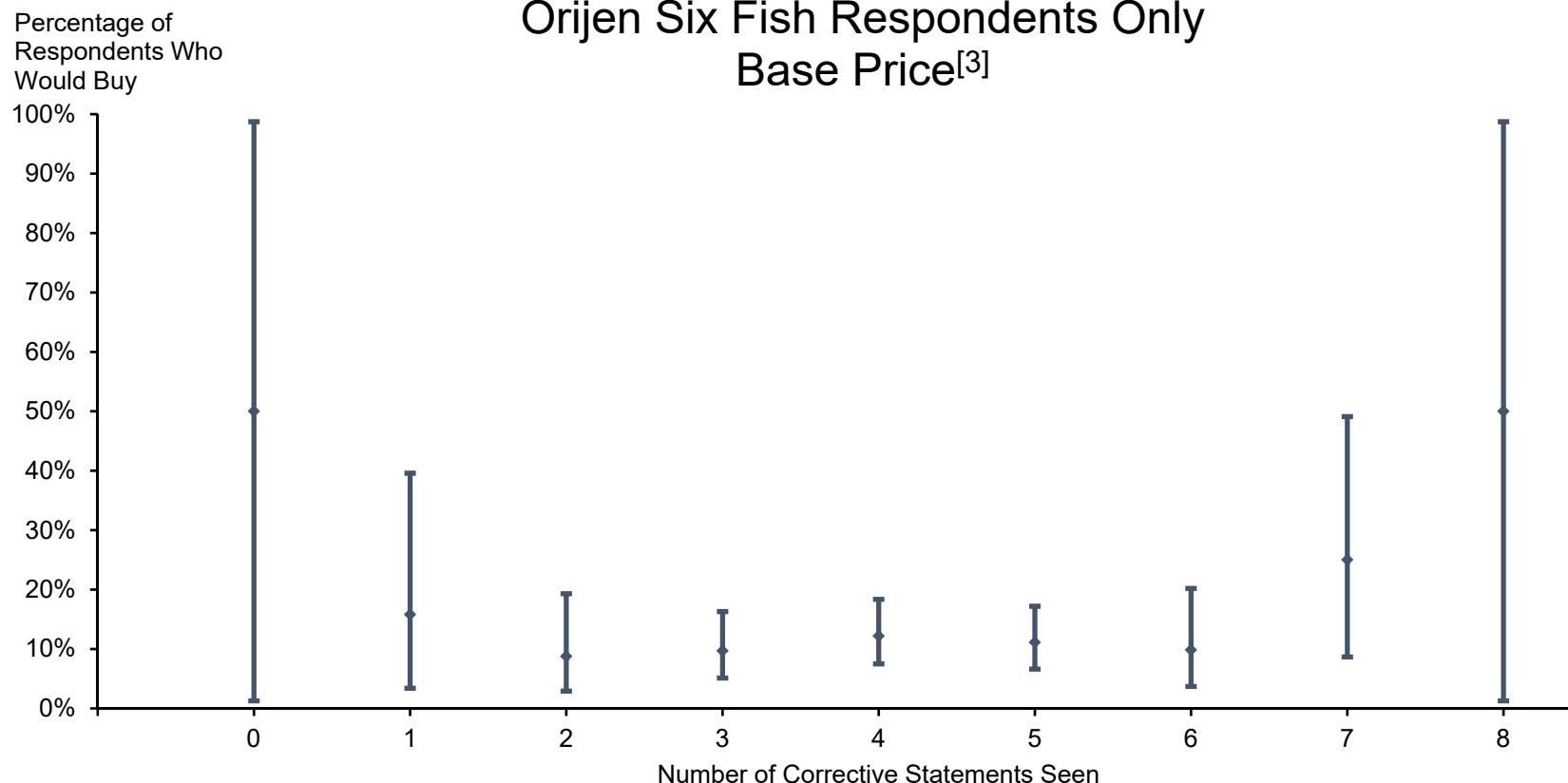
Source: Krosnick Technical Report, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded. Blank cells represent combinations of Price and Number of Corrective Messages Seen with zero observations.

[2] The Krosnick Technical Report explains that "Respondents will be randomly assigned to see one of five price points using the variable 'pc'." For each of the products displayed, Dr. Krosnick selected five price options that "surrounded the manufacturer's suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above." The Base Price for the Orijen Six Fish product was \$53.49.

Exhibit 7
Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

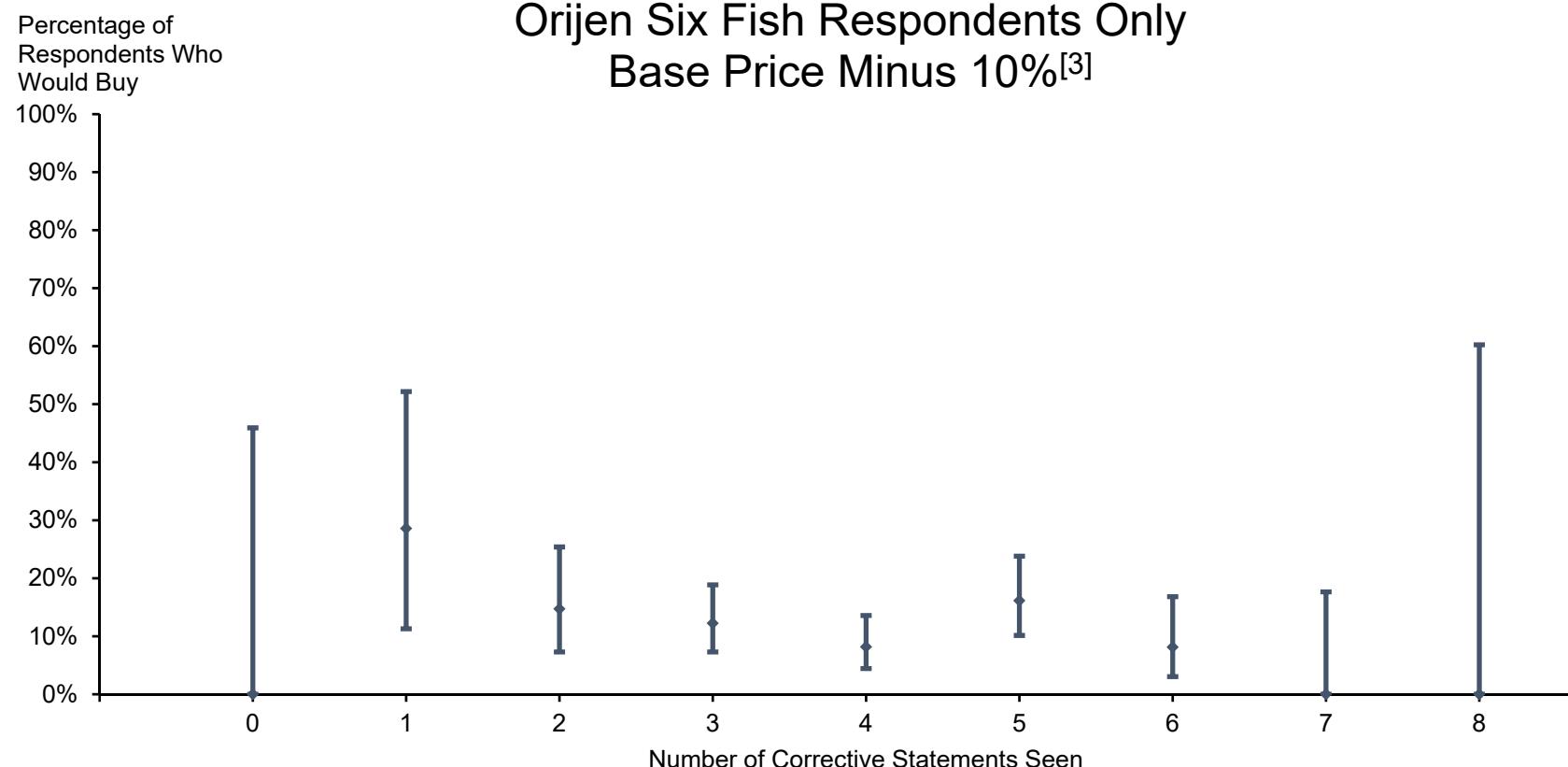
[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49.

Exhibit 8

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

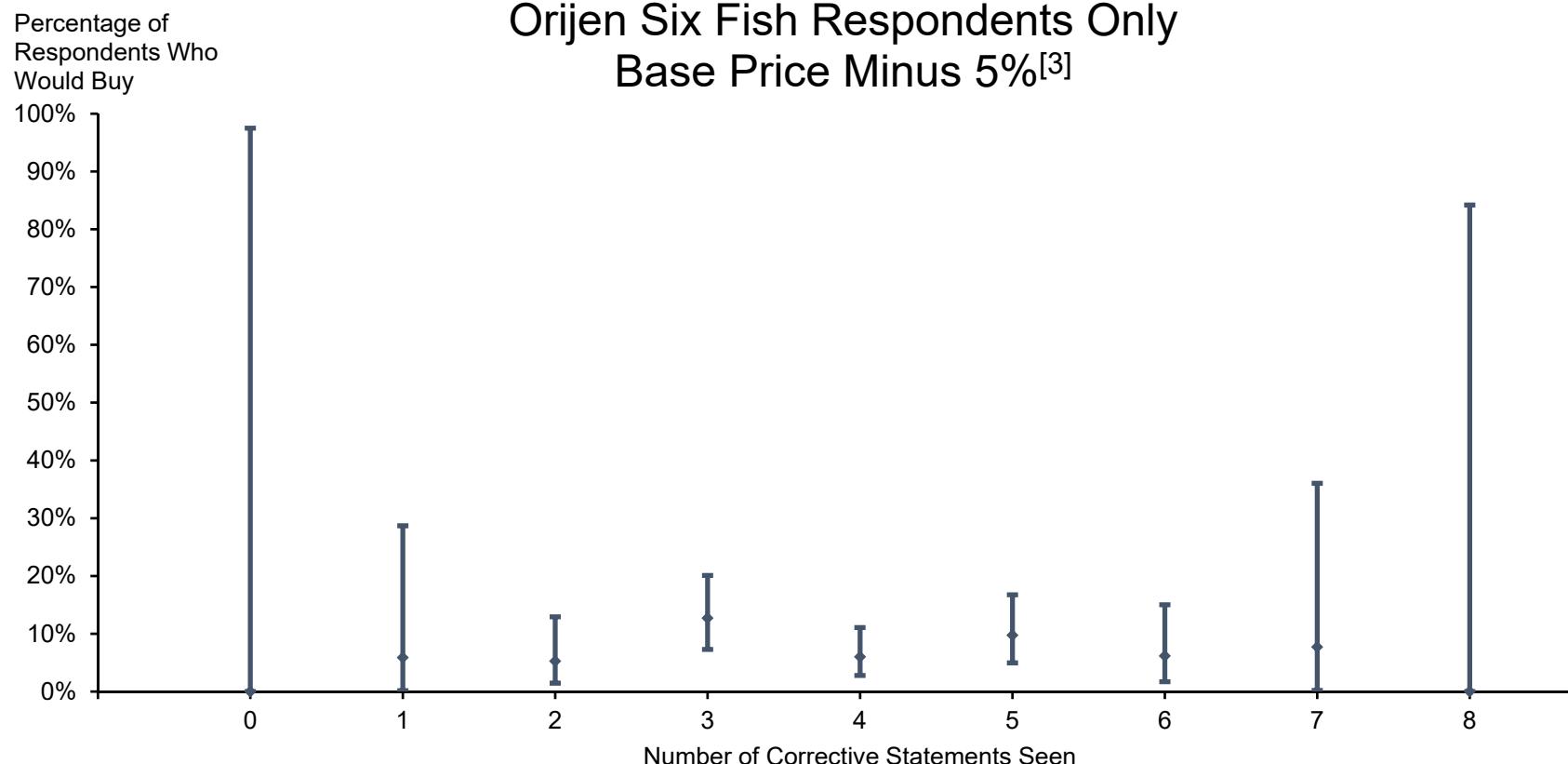
Note:

[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49.

Exhibit 9
Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

Note:

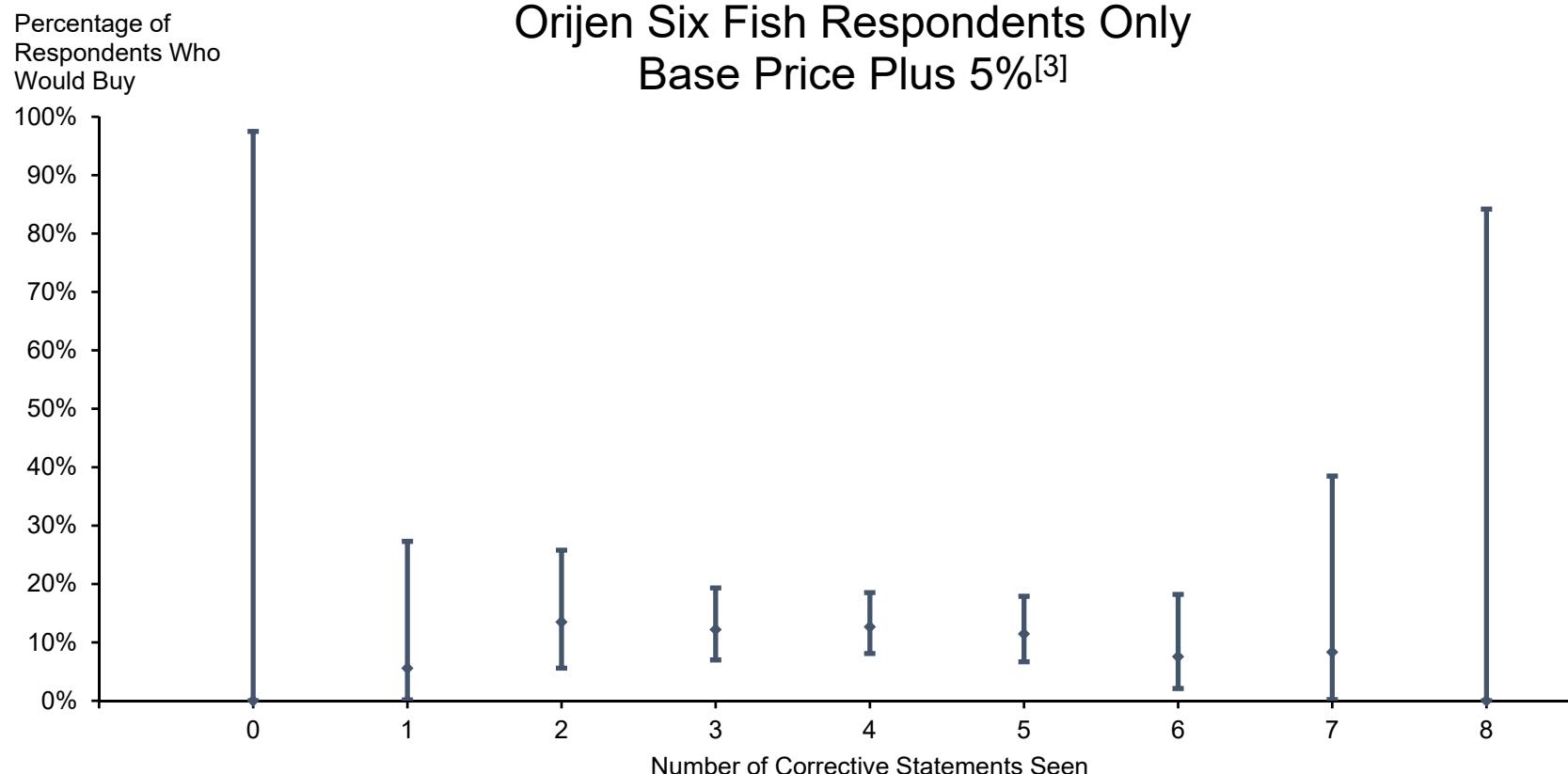
[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49.

Exhibit 10

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

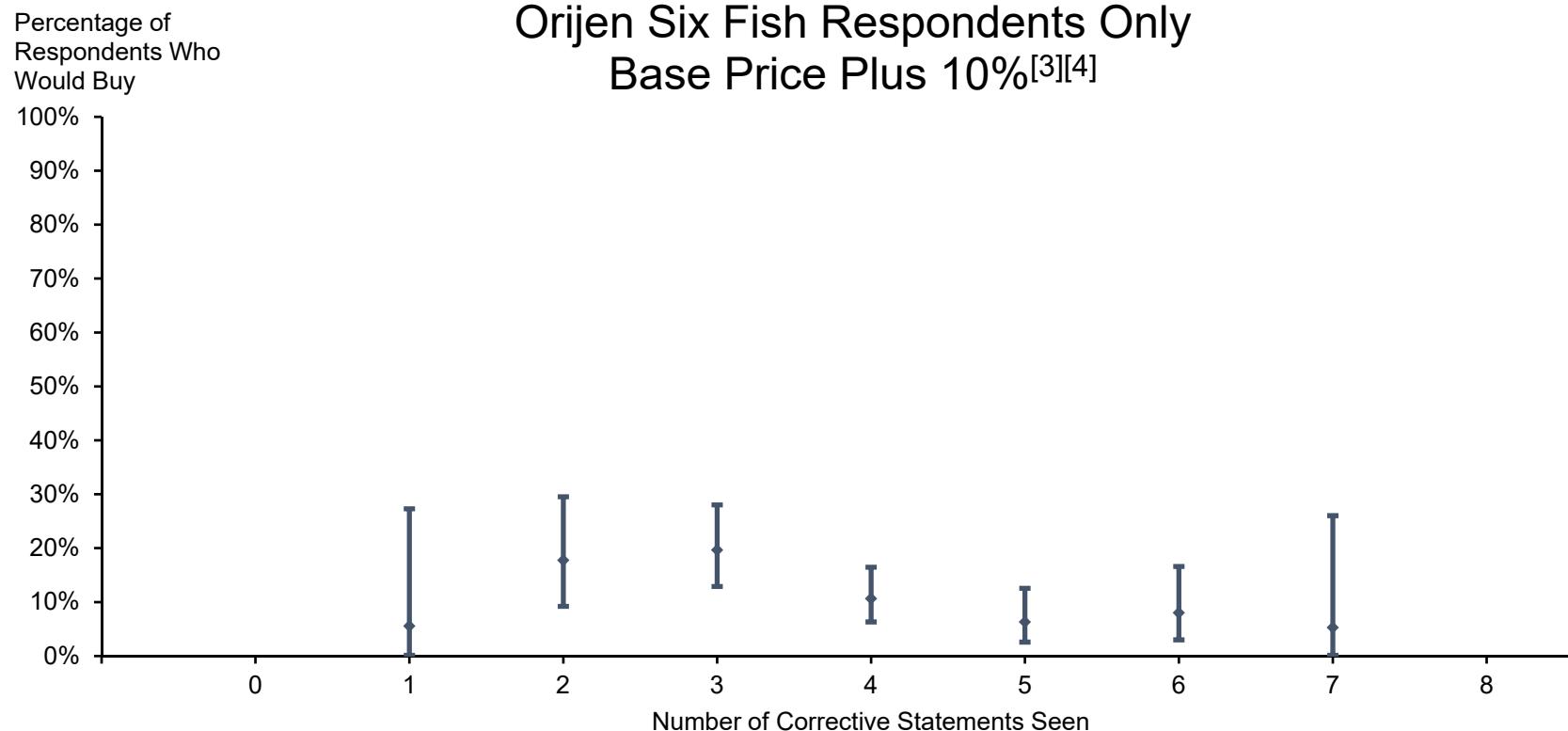
Note:

[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49.

Exhibit 11
Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Orijen Six Fish product was \$53.49.

[4] No respondents were shown the Base Price Plus 10% and zero Corrective Statements. No respondents were shown the Base Price Plus 10% and eight Corrective Statements.

Exhibit 12
Percentage of Survey Respondents That Are Willing to Buy
by Price and Number of Corrective Statements Seen^[1]
Acana Duck and Pear Singles Formula Respondents Only

Price ^[2]	Number of Corrective Statements Seen								
	0	1	2	3	4	5	6	7	8
Base Price Minus 10%	100%	32%	12%	14%	14%	14%	19%	5%	0%
Base Price Minus 5%	0%	0%	11%	16%	11%	11%	13%	11%	0%
Base Price	50%	0%	11%	12%	16%	11%	16%	0%	0%
Base Price Plus 5%	-	21%	18%	10%	12%	11%	8%	11%	-
Base Price Plus 10%	20%	10%	27%	9%	8%	6%	9%	14%	-
Total Number of Respondents	10	103	306	637	818	626	306	97	5

Source: Krosnick Technical Report, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

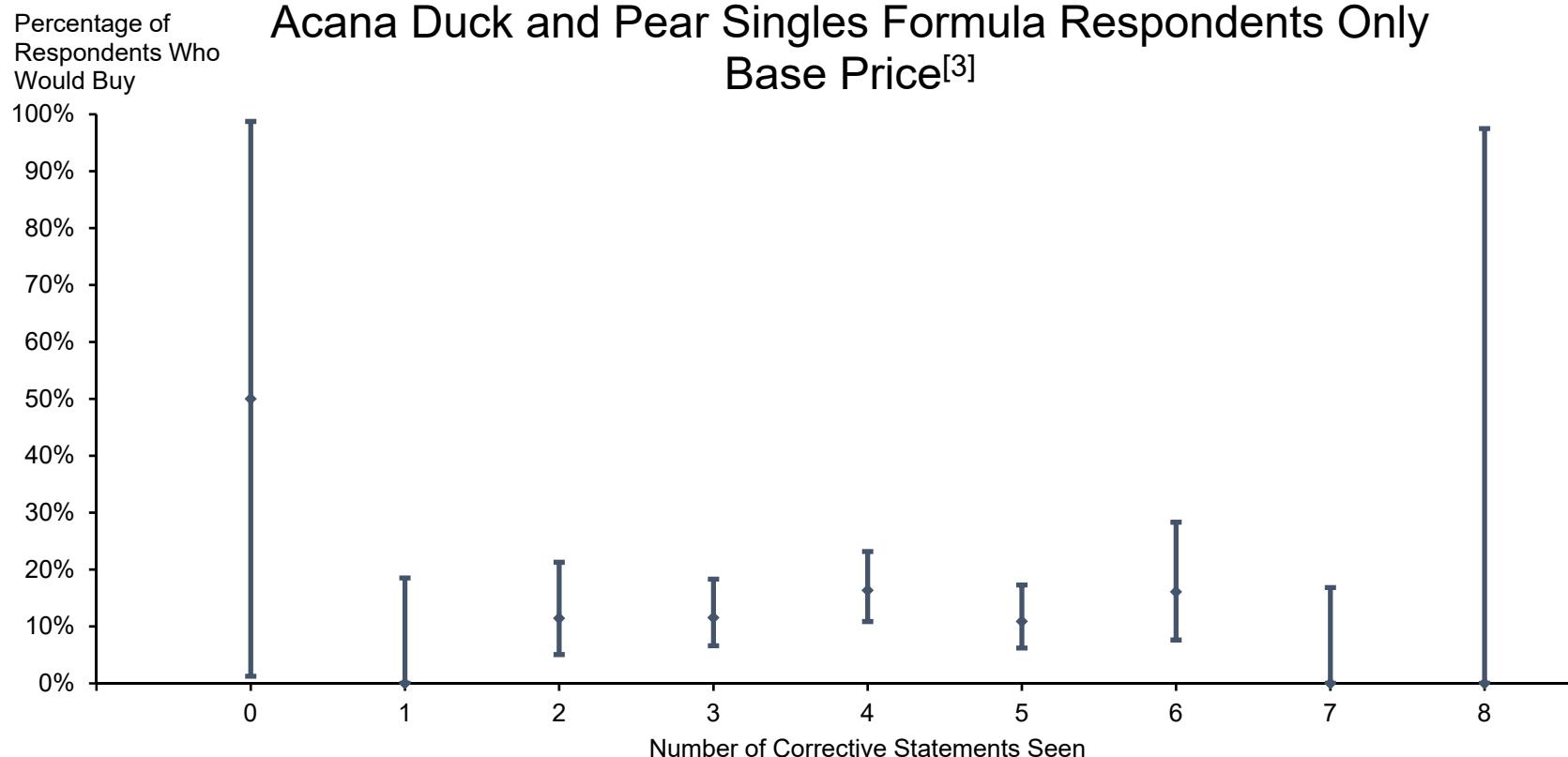
Note:

[1] Observations with empty values for willingness to buy are excluded. Blank cells represent combinations of Price and Number of Corrective Messages Seen with zero observations.

[2] The Krosnick Technical Report explains that "Respondents will be randomly assigned to see one of five price points using the variable 'pc'." For each of the products displayed, Dr. Krosnick selected five price options that "surrounded the manufacturer's suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above." The Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 13

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42– 43, 172; Supporting materials accompanying the Krosnick Report.

Note:

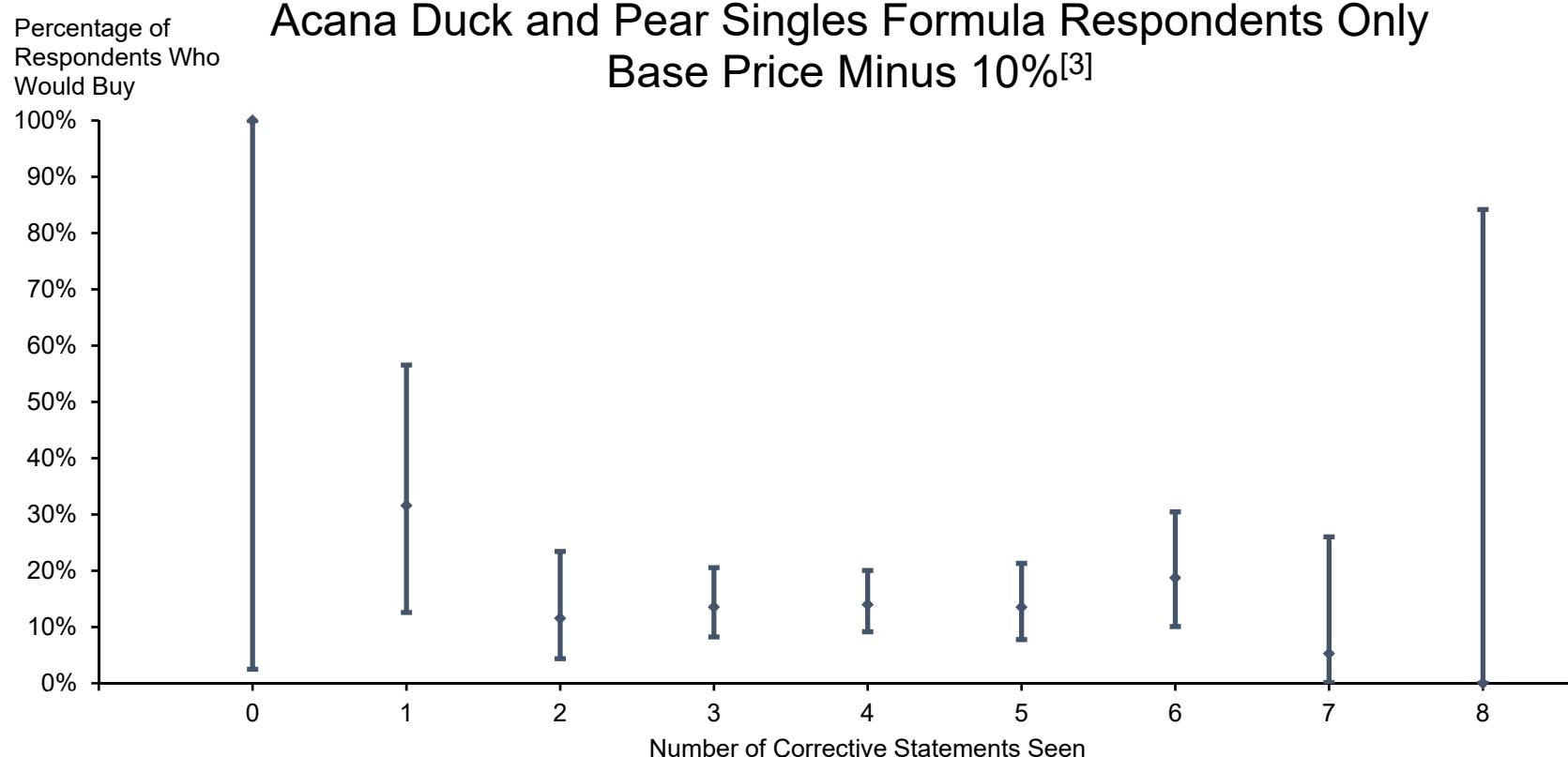
[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc’.” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 14

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

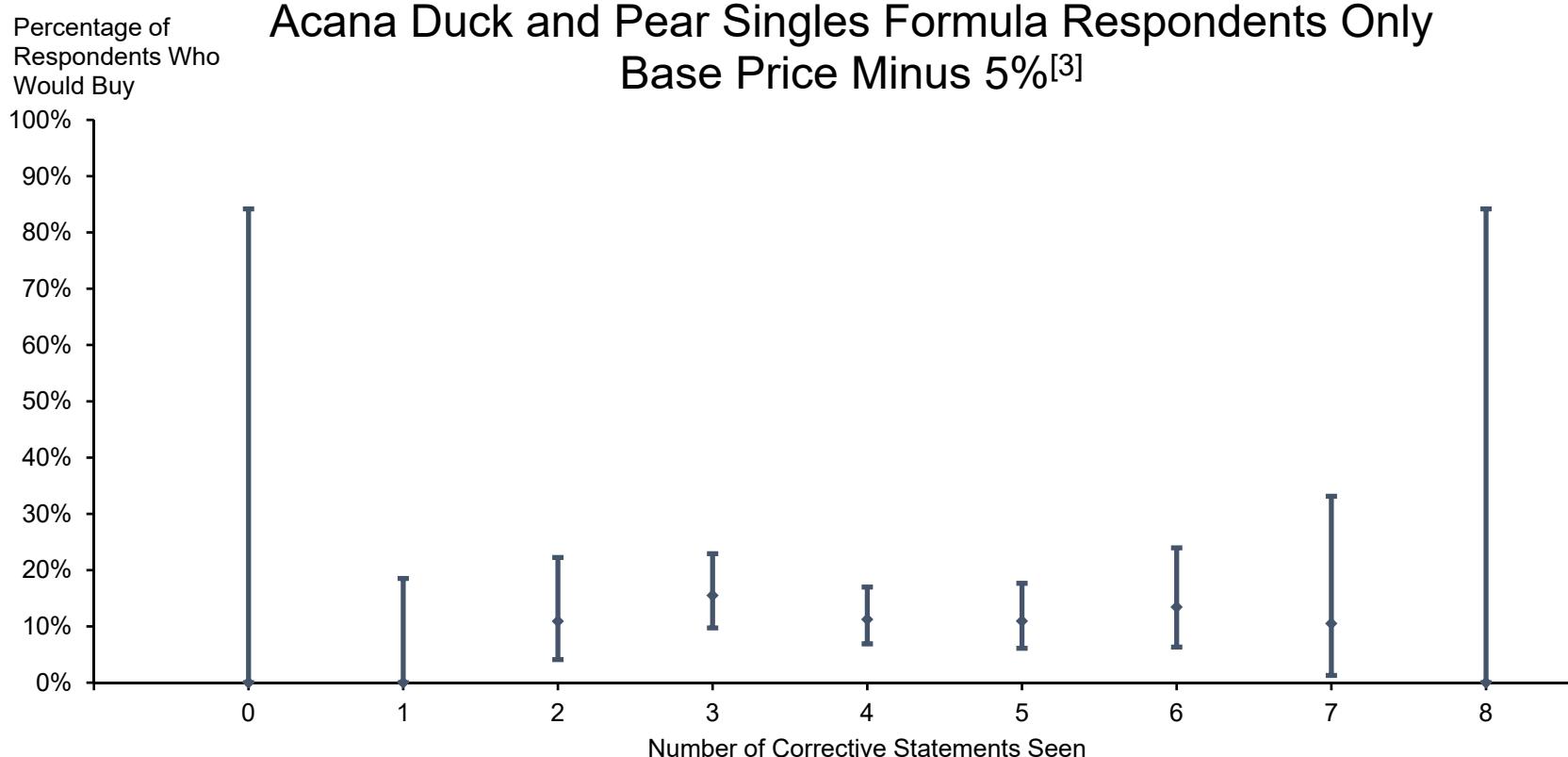
[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc’.” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 15

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

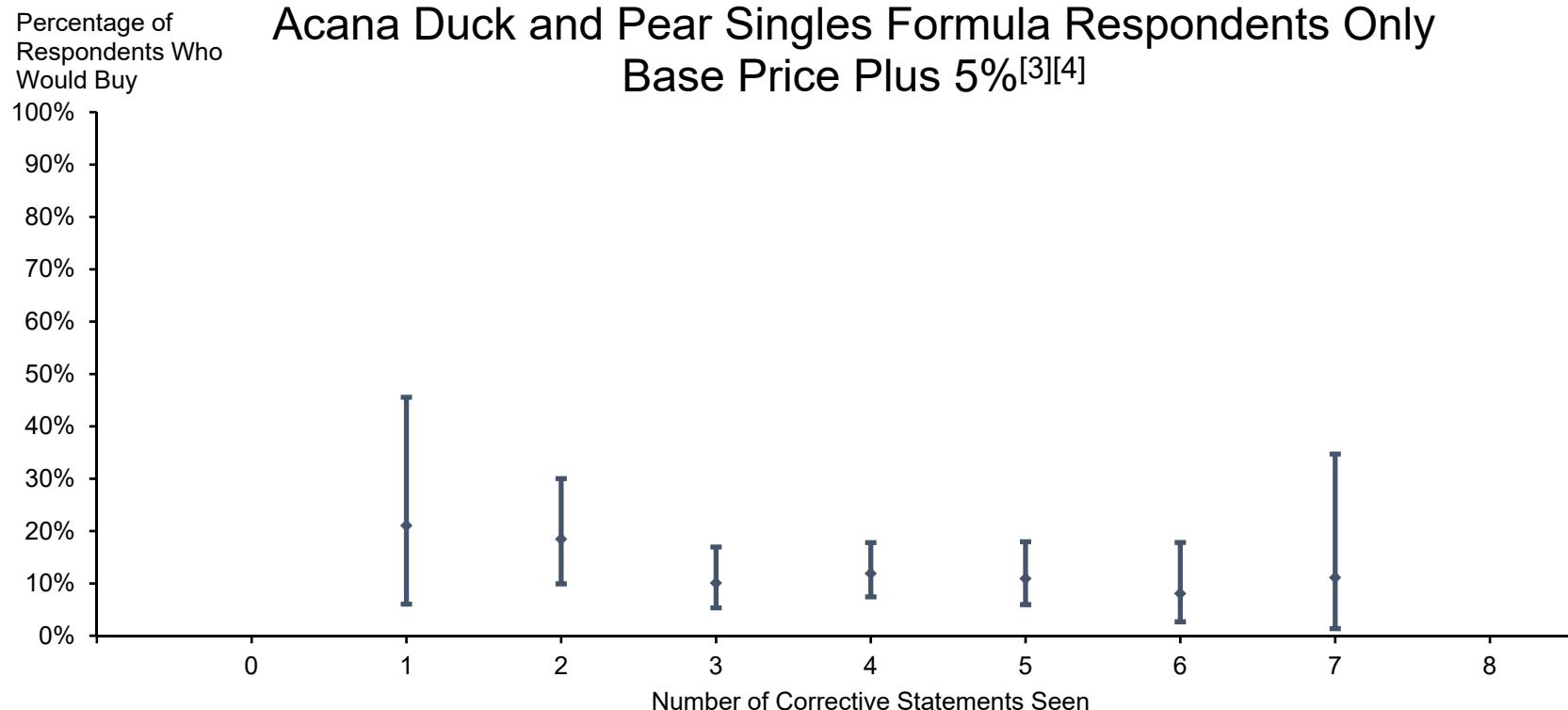
[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Acana Duck and Pear Singles product was \$41.99.

Exhibit 16

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded.

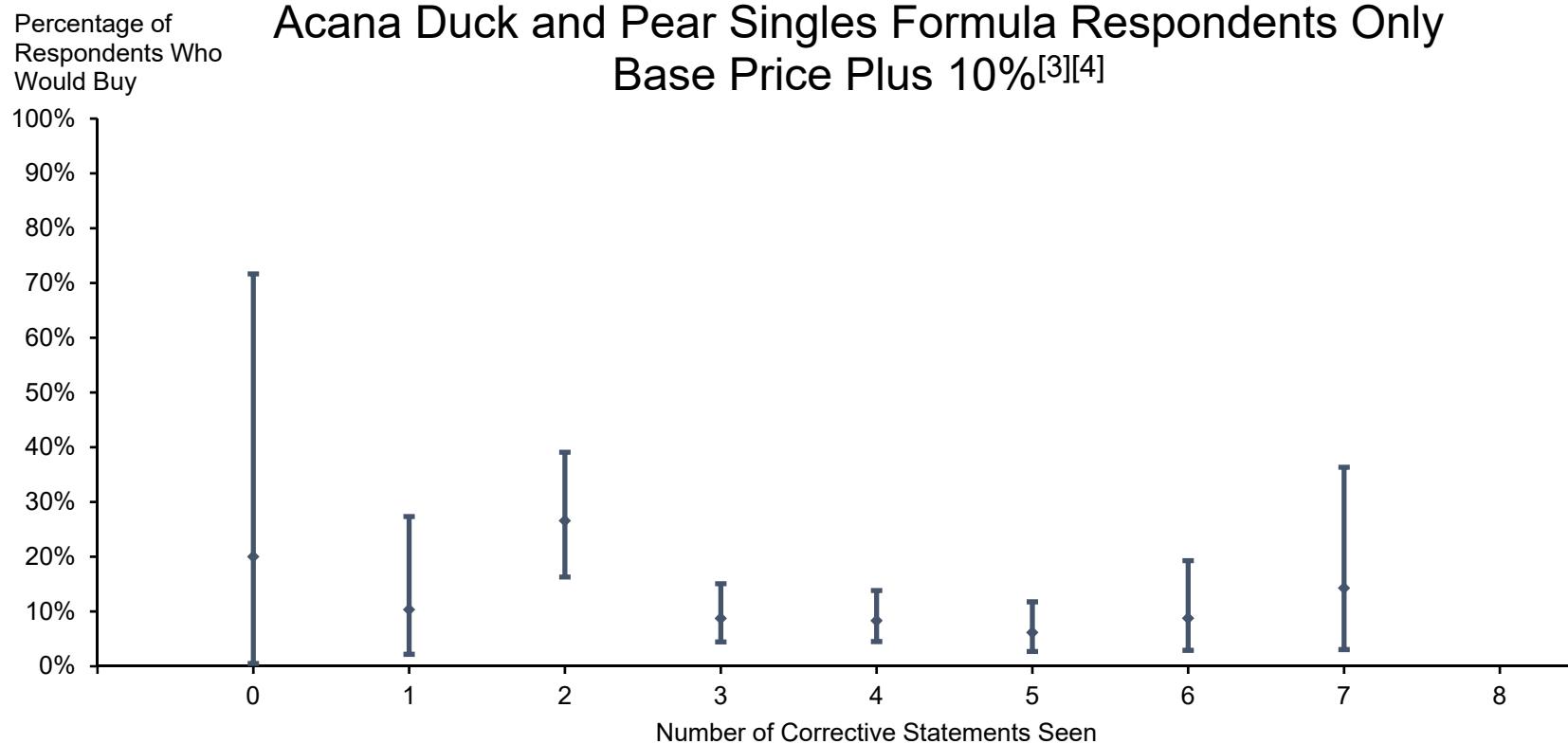
[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Acana Duck and Pear Singles product was \$41.99.

[4] No respondents were shown the Base Price Plus 5% and zero Corrective Statements. No respondents were shown the Base Price Plus 5% and eight Corrective Statements.

Exhibit 17

Percentage of Survey Respondents Answering They Would Buy at the Specified Price Point and Associated Confidence Intervals by Number of Corrective Statements Seen^{[1][2]}



Source: Krosnick Technical Report Part 1, pp. 42–43, 172; Supporting materials accompanying the Krosnick Report.

Note:

[1] Observations with empty values for willingness to buy are excluded.

[2] The confidence interval shown is the 95% Clopper-Pearson interval.

[3] The Krosnick Technical Report Part 1 explains that “Respondents will be randomly assigned to see one of five price points using the variable ‘pc.’” For each of the products displayed, Dr. Krosnick selected five price options that “surrounded the manufacturer’s suggested retail price for the product, including prices about 10 percent below, about 5 percent below, about 5 percent above, and about 10 percent above.” The Base Price for the Acana Duck and Pear Singles product was \$41.99.

[4] No respondents were shown the Base Price Plus 10% and eight Corrective Statements.